Academic Labour and the Capitalist University: A critique of higher education through the law of value

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Table of Contents

Publications

Dedications

With love and gratitude to Susan and Gracie Winn

For Jacqui and Nigel Winn

Solidarity with the scholars of the Social Science Centre, Lincoln

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Publications submitted for examination

Neary, M. and Winn, J. (2009) The student as producer: reinventing the student experience in higher education. In: Bell, L., Neary, M. and Stevenson, H. (eds.) *The future of higher education: policy, pedagogy and the student experience*. London: Continuum, 126-138. http://eprints.lincoln.ac.uk/1675/

Hall, R. and Winn, J. (2011) Questioning technology in the development of a resilient higher education. *E-Learning and Digital Media*, 8 (4) 343-356. http://eprints.lincoln.ac.uk/4145/

* Winn, J. (2012) Open education: from the freedom of things to the freedom of people. In: Neary, M., Bell, L. and Stevenson, H. (eds.) *Towards teaching in public: reshaping the modern university*. London: Continuum, 133-147. http://eprints.lincoln.ac.uk/4064/

Neary, M. and Winn, J. (2012) Open education: common(s), commonism and the new common wealth. *Ephemera: Theory & Politics in Organization*, 12 (4) 406-422. http://eprints.lincoln.ac.uk/4059/

Social Science Centre, Lincoln (2013) An experiment in free, co-operative higher education. *Radical Philosophy*, 182, 66-67. http://www.radicalphilosophy.com/news/an-experiment-in-free-co-operative-higher-education

Winn, J. and Lockwood, D. (2013) Student as Producer is hacking the university. In: Beetham, H. and Sharpe, R. (eds.) *Rethinking pedagogy for a digital age*. London: Routledge, 218-229. http://eprints.lincoln.ac.uk/5186/

* Winn, J. (2013) Hacking in the university: contesting the valorisation of academic labour. *tripleC: Communication, Capitalism and Critique*, 11 (2) 486-503. http://eprints.lincoln.ac.uk/12514/

* Winn, J. (2014) Writing about academic labour. *Workplace: A journal for academic labour*, 25, 1-15. http://eprints.lincoln.ac.uk/14592/

* Winn, J. (2015a) Open Education and the emancipation of academic labour. *Learning, Media and Technology*, 40 (3). http://eprints.lincoln.ac.uk/14594/

* Winn, J. (2015b) The co-operative university: Labour, property and pedagogy. *Power and Education*, 7 (1) 39-55. http://eprints.lincoln.ac.uk/14593/

Introduction

This commentary provides an overview of a body of work that was published between 2009 and 2015. It summarises the significance of the contribution of that work and establishes its coherence both chronologically and thematically.

The work submitted for examination consists of ten items, with the key sole-authored components comprising a book chapter (Winn, 2012) and four peer-reviewed journal articles (Winn, 2013; 2014; 2015a; 2015b). Other, joint-authored work is intended to be supplementary and to provide further evidence of the two persistent themes of inquiry which my work has been concerned with over the last six years: the role and character of labour and property in higher education, or rather, 'academic labour' and the 'academic commons'. Six of the ten publications discuss these themes through a critique of the role of technology in higher education, in particular the way networked technology forms the practical, ideological and legal premise for the idea and forms of 'openness' in higher education. Throughout my work, I treat 'technology' as a reified and fetishized concept which masks the more fundamental categories of *labour*, *value* and the *commodity-form* that are concealed in the idea and form of the 'public university'. I start from the observation that advocates of 'open education' tend to envision an alternative form of higher education that is based on a novel form of academic commons but neglect to go further and critically consider the underlying form of academic labour. As such, the product is set free but not the producer. In response, through my publications I develop the theoretical basis for an alternative social and institutional form of co-operative higher education; one in which openness is constituted through a categorial critique aimed at the existing commodity-form of knowledge production.

The wider context to which my work responds is the marketization of UK higher education since the early 1990s and the concurrent conceptualisation in the UK of students as consumers (Naidoo *et al*, 2011). For those of us who are critical of this shift in higher education, which follows a broader destruction of the welfare state in the UK (Huber and Stephens, 2010), one response is to re-engineer the organising principle of higher education so that students are understood as 'producers' of knowledge and academic collaborators. In doing so, my co-authors and I have aimed to reinvigorate the processes by which universities are seen as sites that openly contribute to the general intellectual well-being of society (Neary and Winn, 2009). In the absence of such a response, a combination of market competition among universities (Palfreyman and Tapper, 2014), and students coerced by a 'pedagogy of debt' (Williams, 2006) defines the social purpose of the university as instrumental to the needs of capital and an individual rather than social good. In effect, this shift can be understood in terms of the welfare and intellectual life of students being increasingly subsumed by the imperatives of capital (Wood, 2002) and subordinated to the reproductive requirements of labour under capital (Rikowski, 2002). Within the confines of working within higher education, the political project of my research has always been against such imperatives and subordination.

The body of work discussed here provides a substantial and original contribution to knowledge in the following ways: By subjecting 'open education' to a negative critique based on Marx's categories of the commodity, value and labour, I reveal fundamental features of the 'academic commons' that have not been identified through critiques that neglect the materiality of openness and technology. In order to illustrate this, I examine how 'hacking' (out of which the Open Education movement developed) was not only a cultural phenomenon but a form of academic labour that emerged out of the intensification and valorisation of scientific research. I develop this by exploring how

'value' is an underlying and mediating imperative in higher education, and illustrate how using a 'form-analytic' approach helps us reconceive the social form of knowledge and the roles of teacher and student in a way that most treatments of academic labour fail to do. I also demonstrate how it is possible to go beyond this critique by adopting a position of methodological negativity, against labour rather than from the standpoint of labour, to construct a theory for an alternative to the capitalist university: co-operative higher education. By combining this theoretical and practical work with emerging ideas on 'open co-operatives' in other areas, I show how new forms of higher education cannot be based on existing practices of reciprocity based on the production of value, as is often assumed, but rather on a new and directly social form of knowledge production that emerges out of the free association between individuals who recognise that we have much to learn from each other.

Chronological overview of my published work

I began my research in 2008, seeking to fundamentally question the idea of the modern university and the purposes of higher education, catalysed by the dysfunctional relationships between research and teaching and teacher and student (Neary and Winn, 2009). In this chapter, which I wrote with Mike Neary,[1] we provide historical references and recent examples of students engaged in research with their teachers. We highlight the affordances of this reconfiguration of the pedagogical relationship but argue that this model of 'research-engaged' teaching and learning has become uncoupled from the discussion about the real nature and idea of the university as a social institution. This chapter established a great deal of related subsequent work in a large scale institutional project that is referred to as Student as Producer (http://studentasproducer.lincoln.ac.uk). We connect work undertaken by Mike Neary at the Reinvention Centre, Warwick, to the student protests in Europe and the US in the late 1960s, when demands were made to democratise the production of knowledge across society. This discussion is then grounded in the earlier work of Walter Benjamin (1892-1940) and Karl Marx (1818-1883), each of whom offer incisive commentary and analysis of the nature of capitalist production. Benjamin is key to this chapter as his work makes explicit links between student life and the productivity of the university, insisting on the need for intellectual workers to intervene in society not only through their product but by reflecting critically on the means of production, or the "apparatus" of knowledge production. On this basis, students do not simply engage in research for the sake of the 'output' but in the process of research they should be encouraged to reflect

[1] On reflection, the production of this chapter was itself an example of what it argues for. It marks the point when I took on the role of student, embarking on research with my supervisor and colleague that continues to this day. The chapter also acts as a reference point throughout my subsequent publications, establishing in a preliminary way the themes of academic labour, academic commons, openness and co-operativism, as well as establishing the significance of Marx's social theory for my work.

critically on the character and idea of the university. We then focus on Marx's concept of the 'general intellect', and its more recent articulation as 'mass intellectuality', each idea pointing to forms of knowledge that are expressed both in the general 'living' knowledge of society but also embodied in the material development of society, most visible in the products of science and technology. We conclude by arguing that recent open technologies enable the increasingly social, co-operative production of knowledge, as seen in the 'hacker' and 'free culture' movements. In doing so, this 'free culture' provokes us to question the purpose of the contemporary university, the relationships between research and teacher, teacher and student, and therefore the organising principles upon which academic knowledge is transmitted and produced.

In the next publication, which I wrote with Richard Hall, we question the role of technology in higher education and the affordances of 'openness' in education in the face of social crisis (Hall and Winn, 2011). This article was written in the context of two related crises: global recession and environmental catastrophe. We sought to shift the attention and energy of the 'open education' movement, whose focus at that time was on the sustainability of business models for 'openness', towards addressing social problems arising from the impact of an energy crisis on the provision of higher education and the sustainability of human life itself.

In the first of the key, sole-authored publications included here (Winn, 2012), I develop an original critique of open education by analysing the production and promises of Open Educational Resources (OER) through Marx's labour theory of value. I critically assess the ambitions and achievements of the Open Education movement, always conscious of the emancipatory potential established in the earlier book chapter with Mike Neary

(Neary and Winn, 2009) and the opportunity for a praxis of openness to reconfigure the relationship between teachers and students, the university and society. In this article, I conclude by arguing that the revolutionary potential of open education remains undeveloped in its liberal reconceptualization of what it means to be a researcher, teacher and student and that this potential could be realised by a shift in focus from the liberation of resources to the liberation of teachers and students from their labour. This established the main trajectory of my research, which works towards the theory and practice of post-work and post-capitalist higher education. By post-work, I refer to the abolition of wage labour for the production of surplus value, effecting both a qualitative transformation of human labour and its quantitative reduction (Krisis Group, 1999). By post-capitalist, I refer to social relations that are not mediated by the imperative of producing value, the social form of wealth in capitalist society (Postone, 1993; Hudis, 2012). A critique of labour, private property and value in the context of higher education, and in particular open education, is central to many of the works submitted.

Following this, in an article co-authored with Mike Neary, we establish the genealogy of openness in higher education within the wider free and open source software movement and focus on a critique of the knowledge commons (i.e. intellectual property) (Neary and Winn, 2012). While recognising the importance of reproducing forms of shared social wealth, we argue that this has been at the avoidance of recognising the pivotal role of labour and the form it takes in capitalism. According to Marx, property in the form of a commodity, whether private, public or common is the objectification of the dual form of capitalist labour; its use-value and exchange-value expressing the dual concrete and abstract qualities of productive labour. We assert that it is the form that wealth takes in capitalism (i.e. the value-form), which continues to mediate and dominates the

production of the commons, including that found in the production of knowledge (i.e. open education). From this point, we implicitly develop the idea of 'mass intellectuality', which we identified in our earlier work (Neary and Winn, 2009), but through a negative critique of its underlying theory found in Autonomist Marxism. The connection between Student as Producer and the production of a commons is made through the recent work of Gigi Roggero, who has also made the case for 'co-research' whereby academics and students work together as a form of political praxis (Roggero, 2011). Likewise, for Roggero, it is a focus on how knowledge is produced which provides the basis for building an 'institution of the common'. We conclude by proposing that the Social Science Centre, a co-operative for higher education that we co-founded in 2011, is such an institution (Social Science Centre, 2013).

Throughout this work, I have been concerned with the role of the student in higher education and the need for students to democratically participate in the design, development and governance of their university's infrastructure. This should be understood more broadly as a desire to improve the technological means and organisational conditions for increased co-operation between university staff and students and encourage greater democratic control by labour over the means of knowledge production (Winn, 2015b). A brief overview of this research and development work, spanning four years and ten grant-funded projects, is summarised in a short case study (Winn and Lockwood, 2013). In this case study, we argue that Student as Producer offers an appropriate and critical framework for the practice of openness in higher education. It is an attempt to avoid the reification of openness and ground it as praxis in an adequate critical social theoretical framework.

Following this, in the second of my key publications, I provide a more thoroughgoing history and critique of the hacker movement as a precursor to the openness movement in higher education (Winn, 2013), and argue that hacking should be understood as a response to the broader and longer trajectory of gradually commercialising university research and the concomitant valorisation of academic labour. This article proposes an original standpoint from which to understand the hacker movement and the resulting open education movement. It is an attempt to both theorise the way in which the productivity of academic labour has been gradually 'improved' over the last century (a concurrent combination of both 'formal' and 'real subsumption', whereby labour is drawn into the capitalist process of valorisation and transformed), and highlight how this resulted in the creation of a subversive form of property that is reciprocally shared in perpetuity (i.e. 'free and open source software') (Pederson, 2010). It is that subversive form of property which is now regarded as exemplary in terms of the voluntary and highly co-operative form of labour it has given rise to, which when threatened by the imperatives of early venture capitalism, escaped the enclosure of the university, only to return in the form of business models for open education 20 years later.

When taken chronologically, each of my publications has increasingly focused on the pivotal role of academic labour (both teacher and student) in the formation of higher education, and in the third of my key publications I develop an original critical position on academic labour (Winn, 2014). Here, I contrast my own approach to literature which tends to focus on 'academic identity' and changes to the labour process. While other contemporary writers, such as Glenn Rikowski, have perceptively employed Marx's critical categories to discuss academic work, I discuss the productive pedagogical relationship between teacher and student in terms of a value-form analysis, offering a

critique *of* labour rather than a critique *from* the standpoint of labour (Postone, 1993). In this article, I also develop my combined theoretical and methodological approach and further outline basic features of post-capitalist knowledge production (i.e. higher education); one that builds on the achievements of capitalism and overcomes its dominating forms, rather than trying to recover a 'golden age' of higher education which, if it ever existed, was specific to the changing historical and material conditions of its time.

Building on this, in my next key publication (Winn, 2015a) I revisit the theme of open education and apply the argument developed in Winn (2014) by offering an original critique of 'open access' through Marx's theory of the value-form, and of the legal infrastructure of open education through the work of Marxist legal theorist, Evgeny Pashukanis (1891-1937). I conclude by outlining the relevance and potential for post-capitalist higher education of the emerging 'open co-operative' movement, which attempts to resolve in practice a number of issues I have raised throughout my work on the nature of labour, property and technology. As such, I attempt to bring together in a preliminary way, open education and co-operative higher education and point towards a framework for open education based on the values and principles of a new and radical form of co-operativism.

This is the premise for my final publication where I review recent work concerning co-operative higher education and theorise the fundamental features of a co-operative university (Winn, 2015b). This fifth key publication addresses many of the research questions in my earlier work concerning the role and character of academic labour, the constitution of an academic commons and the democratisation of knowledge

production, and in doing so consolidates my theoretical and methodological approach by providing a coherent and original model of labour, property and pedagogy for post-capitalist higher education. Here, I also review a number of subsequent articles through which Student as Producer has been developed both as a pedagogical framework and a political project. In doing so, I propose that the collective work on Student as Producer provides the pedagogical basis from which the institutional form of co-operative higher education can be developed, pointing towards the abolition of academic labour and the constitution of an academic commons. Due to restrictions on the length of the final article, the published version offers no discussion of the Social Science Centre, Lincoln (SSC), but I want to acknowledge the crucial contribution that my fellow scholars of the SSC have made to my experience of co-operative higher education and subsequent reflections on our mutual work. It has been a defining feature of my personal and professional life since we established our co-operative four years ago and I am continuing to develop this work on open, co-operative higher education through a number of conference papers[2] and a funded research project.[3]

[2] http://josswinn.org/category/conference-papers/

[3] Beyond Public and Private: A Model for Co-operative Higher Education. Available at http://socialsciencecentre.org.uk/blog/2015/03/30/beyond-public-and-private-a-model-for-co-operative-higher-education/ [Accessed 23 April 2015]

Research context and researcher positionality

Openness

Before joining the University of Lincoln in 2007, I was the audio-visual archivist for Amnesty International, a role that required a detailed knowledge of the history of film, video and image technologies within a not-for-profit, campaigning organisation supported by an international membership. Archivists curate institutional and social memory. Part of that role involves making informed judgements about the potential for a technology (e.g. parchment, paper, photo-chemical film, magnetic video, digital hard drives, etc.) to be accessible and useful in the future. It requires the archivist to question assumptions about the provenance of technology and its future potential for both the production and preservation of collective memory. Working in that profession made it clear to me that technological choices are not neutral and that 'progress' must be defined not only by what we imagine of the future but also what we retain and understand of the past. Through my practical work as an archivist it was made clear to me that the development of specific technologies are less the result of individual genius and invention and more the product of on-going social, economic and political imperatives. I was also a member of a profession that understands the social benefits of non-proprietary and open technological standards so that historical media can be preserved effectively and made accessible now and in the future, unbeholden to private and commercial interests.

Consequently, I have long held a social and political interest in open standards and open technologies and I joined the University of Lincoln in 2007 to work on the implementation of an open access and open source archive for research. By definition, open source is non-proprietary software that the user is permitted to modify if they wish.

By having access to the source code, an individual can, with the requisite knowledge, understand how the technology works and this can contribute to the longevity of the artifact. Open source software is defined and protected by the application of a legal license but is more broadly characterized by a concern for the principles of openness, transparency, collaboration, joint ownership and consensus (Coffin, 2006). The product of these principles is now widely referred to as a 'commons', defined and guaranteed by the legal framework of free licenses (Neary and Winn, 2012; Winn, 2015a). When applied to the production of academic knowledge, I refer to it as an 'academic commons'. As I discuss in my work (Winn, 2013), so-called 'copyleft' licenses such as Creative Commons (http://creativecommons.org) and the General Public License (GPL) (Stallman, 2002), subvert commonly held notions of 'intellectual property' and consequently impact on the actual process by which people work together. This is sometimes referred to as 'commons-based peer-production' (Benkler, 2006). Within the context of the university, it works against what David Noble referred to as the "systematic conversion of intellectual activity into intellectual capital and, hence, intellectual property" (Noble, 1998).

Despite the existence of an academic commons, the conflict of property interests and their concomitant manifestation in the labour process within higher education remain apparent. This was the genesis for my article on the history of hacking in universities (Winn, 2013) where I discuss how Richard Stallman left his work at MIT because of this conflict of interests. In other words, Stallman withdrew his academic labour so as to protect his property interests and in doing so was able to establish a commons based on voluntary and co-operative labour. In my research for that article, I recognized that the model for open source software development was the outcome of academic struggle and that a renewed focus on open source methods and principles (the 'hacker ethic') might

be applied to other forms of academic endeavour to help revitalise our aspiration of the student as a producer of knowledge. In effect, I was reclaiming the 'open source' model for the production of knowledge as an academic pursuit that had 'escaped' the US academy in the mid-1980s and been recovered through the predominantly US and European open education movement in the early 2000s.

This idea is evident in the first of my publications (Neary and Winn, 2009), where we concluded by arguing that the 'free culture' movement (later discussed in Winn, 2013 and Winn, 2015a) offers a model of production, enabled by copyleft and similar licenses, by which the organising principles of knowledge creation could be reinvented, repositioning the student as an academic collaborator and valued producer of knowledge rather than predominantly a consumer. My contribution to this book chapter established a recurrent theme throughout my work, which is to regard assertions of 'free culture' or 'openness' as explicit statements about property relations and consequently about the 'means of [knowledge] production' and the role and form of the labour which produces the academic commons. I later led a number of grant-funded research and development projects focusing on the theme of 'openness' in higher education (Winn and Lockwood, 2013), which I argued were intended to practice these changes in property and labour relations between the institution, academics and students, such that the student is recognised as a producer of knowledge and of the social world.

Social crisis

The larger social context to my work has been the Great Recession of 2008-2009 and the subsequent secular crisis affecting the UK and elsewhere (Hall, 2014; Roberts, 2009). I want to note that the current period of capitalist crisis since late 2007 has framed my

entire experience of working in UK higher education. This has produced in me an urgency to understand the concrete effects that are still unfolding and to respond in a theoretically informed way. The political response we have seen from national governments is so clearly inadequate, unsustainable and ultimately catastrophic (Magdoff and Foster, 2011), that I sought a coherent theoretical framework that was historically and materially grounded. The political reaction to the crisis was felt in UK higher education with the removal of public funding for teaching in the arts, humanities and social sciences and the tripling of student tuition fees. This was at a time when my own work was increasingly focused on the collaborative and productive relationship between academics and students, yet the policy and financial framework for higher education in the UK was intensifying and reinforcing the primacy of the exchange relationship and the role of students as consumers.

This deeply felt contradiction has remained the case throughout my work to-date and began to form its theoretical expression following my reading of Marxist scholar, John Holloway (2005), who viscerally articulates the embodiment of critique as the 'scream': "a scream of sadness, a scream of horror, a scream of anger, a scream of refusal: NO." (2005, 1) Holloway, influenced by the 'negative dialectics' of Theodor Adorno (Holloway, 2008) and Marx's pursuit of the "*ruthless criticism* of all that exists" (Marx, 1975, 142), insists that "we start from negation, from dissonance" (Holloway, 2005, 1), so that we might "relate to each other as people and not as things." (2005, 2) I have indeed 'clung to the scream' throughout the work included here and have repeatedly sought to offer a negative critique of the capitalist university while convinced that changes to social relations made possible by the Internet and web-based technologies are historically progressive.

Scholar activism

Having previously worked in an international, member-supported, campaigning organisation for human rights, I have tried to find ways that my academic work can also be characterised by an ethic of activism. In the context of the greatest social crisis of my lifetime and amidst a coercive and undemocratically enforced set of reforms in UK higher education (McGettigan, 2013), I discovered the work on 'scholar activism' by Paul Chatterton, Stuart Hodkinson and Jenny Pickerill (The Autonomous Geographies Collective, 2010). These honest accounts of their work provided an inspiring, contemporary example of how it is possible to act 'in, against and beyond' the confines of the capitalist university. Published in the aftermath of the 2008-9 global recession, their writing urges other academics to make "strategic interventions" that overcome the "false distinction between academia and wider society." (247)

Chatterton *et al* claim that the "starting point for today's scholar activism must be, as Casa-Cortes and Cobarrubias assert, 'rethinking the university as a site of production and not as an ivory tower for the contemplation of the outside world.'" (Autonomous Geographies Collective, 2010, 262) This principle requires that within the university we recognise the centrality of academic labour, its processes, exploitation, precarity and hierarchies. Although the Autonomous Geographies Collective acknowledges the role of academic labour in the production of value for the capitalist university, they do not develop a substantive critique as I have done throughout my work. In doing so, I am less concerned with the detail of the labour process, which is well documented by others (e.g. Ball, 2003; see Winn, 2014), and more interested in establishing how academic labour can be understood abstractly according to Marx's corresponding categories of the commodity-form and the dual form of labour. In other words, academic or so-called

'immaterial' and intellectual labour, including that of the student, is not privileged or special labour but takes the same form as labour in general and is likewise employed, exploited and in contest with capital. While acknowledging that universities act as "powerful agents of neo-liberal globalisation and corporate power, climate change, the commodification of education, the militarisation of society and local gentrification (Autonomous Geographies Collective, 2010, 263)", my use of Marx's theory of value has led me to understand capitalism as a totality of social processes and to situate such "powerful agents" within and subject to the 'quasi-objective' logic of capitalist relations and to question the individual agency of labour which liberal theory promises (Postone, 1993).

The on-going shared research project throughout all of my work since 2008 has been Student as Producer. In addition to the original book chapter (Neary and Winn, 2009) I have since situated most of my funded research and development projects within the context of this large-scale institutional project (Winn and Lockwood, 2013). Student as Producer can be understood as encapsulating different forms of work: Since 2007 it has been a strategic, political project led by Mike Neary from within the University of Lincoln; between 2010-2013, it was a grant-funded, institution-wide teaching and learning project involving academics, student and professional staff from across the university. For some of us, it has always been a form of praxis, attempting to theorise the capitalist university and reassert the student's role in the emancipatory project of higher education that was clearly recognised in the global protests of 1968 (Ross, 2002) and has been reasserted through student protests on-going in the UK and elsewhere since 2010.

To pursue and extend this activism, in 2011 I co-founded the Social Science Centre, Lincoln (SSC) a co-operative for higher education (Social Science Centre, 2013). The SSC has allowed Mike Neary and I to extend our work on Student as Producer within an autonomous member-run co-operative. Initially, we were inspired by the work that Stuart Hodkinson and Paul Chatterton had done on autonomous social centres (Hodkinson and Chatterton, 2006). Their research had revealed to us a network of inspiring centres across the UK and Europe, which act as hubs of resistance to the privatisation of public spaces, such as universities. We saw how these co-operatively run centres collectively broaden and strengthen the efforts of existing social movements by providing space and resource for the practice of different forms of social relations, not based on wage work and private property but instead on mutual aid and the construction of a social commons. Modeled on the social centres, we wanted the Social Science Centre to provide a similar space for higher education and for developing our work on Student as Producer in ways that a mainstream university cannot contain.

Current approaches to understanding the changes in UK higher education remain tied to deeply rooted conceptions of public and private (Neary, 2012). Ours is not an argument for or against the privatisation of public higher education but an attempt to go beyond the conventional paradigms of public and private and constitute in practice a form of higher education grounded in the work of theorists such as Karl Marx and Walter Benjamin, the social history, values and principles of the international co-operative movement (Yeo, 1988), and emerging practices of reciprocity which are constituting a new form of academic commons (Neary and Winn, 2012). This approach assumes that a new social and institutional form of higher education must be based on a pedagogic framework that offers an adequate critique of the capitalist university. The university

must once again be asserted as a social and political project rather than an instrument of the economy. We must interrogate its institutional and social forms, such as the emergent 'open education' movement, through critical categories that seek to go beyond the fetishized categories of economics. (Clarke, 1979, 5; Bonefeld, 2014) Through praxis, I have identified sufficient confluences between our pedagogic approach and the theory and practice of worker and social solidarity co-operatives (Conaty, 2014; Winn, 2015b) to believe that a model of co-operative higher education *can* be developed that is more adequate to the current crisis. Because of the specific historical innovations of worker co-operatives and 'common ownership', a co-operative model of higher education is easily aligned with Student as Producer, a pedagogical framework that recognises academic labour and the academic commons as the organising principle for the production of knowledge. A recent article included here (Winn, 2015b) aims to contribute towards that process and my current work directly builds on this.

Theory and method

> *The value-form, whose fully developed shape is the money-form, is very elementary and simple. Nevertheless, the human mind has for more than 2,000 years sought in vain to get to the bottom of it all, whilst on the other hand, to the successful analysis of much more composite and complex forms, there has been at least an approximation. Why? Because the body, as an organic whole, is more easy of study than are the cells of that body. In the analysis of economic forms, moreover, neither microscopes nor chemical reagents are of use. The force of abstraction must replace both. (Marx, 1976, 90)*

Through my initial reading of Holloway, I was drawn to the work of Karl Marx and more recently to writers in the 'New Reading of Marx' (Postone, 1993; Elbe, 2013; Bonefeld, 2014) and *Wertkritik* ('value critique') schools of Marxism (Larsen *et al*, 2014). I have also been influenced by a concurrent and often complementary British tradition of Marxism which emerged in the 1970s, originally associated with the journal *Capital and Class*, including writers such as Werner Bonefeld, Simon Clarke, Ana Dinerstein, John Holloway, and Mike Neary, who have each taken up a critique of value and the 'value-form'. Following these writers and against the traditional and structuralist Marxist standpoints, I place an emphasis on Marx's 'labour theory of value' as a theory of social domination that extends to capitalist society in its totality. This approach led me to a view of the university as a social institution organised around the category of 'value' in the form of waged work and private property.

Through the use of different levels of abstraction, Marx established that commodities in capitalist society are characterised by their *use-value* and their *exchange-value*, and the substance and source of the value of a commodity is human labour, which also has a

corresponding dual form: *concrete labour* and *abstract labour*. Abstract labour is the social reduction of individual concrete labour to a qualitatively homogenous form. Abstract labour is retrospectively quantified in terms of *socially necessary labour time*, which is the time it takes, on average, to produce commodities. As efficiencies in production (e.g. through improved labour techniques and technologies that replace labour) are increased due to the imperative of market competition, the socially necessary labour time to produce commodities is decreased and thus the amount of social labour required in production is reduced, too. Unlike in classical political economy, which argued that individual labour time was the measure of value, socially necessary labour time is a historically dynamic measure of time (Postone, 1993, 291-298), which occurs "behind the backs of the producers" (Marx, 1976, 135). Marx's theory therefore asserts that despite an increasing capacity to produce social wealth in the form of use-values, a reduction in the necessary input of human labour results in a corresponding reduction in the production of (exchange) value. The contradiction built into capitalism is thus the dialectical necessity *and* repulsion of human labour in the pursuit of value and this is regularly exposed through individual accounts of unemployment and precarious work, as well as periods of widespread socio-economic crisis.

Methodologically, my research is grounded in historical materialism and has become increasingly 'form-analytic' (Bonefeld, 2014). A form-analytic approach is distinct from traditional, 'worldview' Marxism, which gradually developed a simplified explanation of class relations and historical progress (Heinrich, 2013, 24-26). The traditional view offers a teleological, transhistorical understanding of historical forces of production that manifest historically specific modes of production. Crucially, such an approach, which characterises the mainstream of Marxism throughout the 20th century, retains a

naturalised, transhistorical view of the category of 'labour' and consequently understands it as the *basis* for an emancipatory critique of capitalism, rather than the historically specific *object* of critique. According to the form-analytic approach however, freedom is not equated with the freedom *of* labour, democratically controlling the means of production and distributing its product, but with the *abolition* of labour as a historically specific and structurally constituting social form. It argues that the limits of traditional, worldview Marxism are ultimately expressed in how it understands social domination as *external* to the processes of production (e.g. the exploitation of an alienated proletariat by the property owning capitalist class) rather than *intrinsic* to it. The traditional view sees the primary object of critique as the unjust mode of *distribution* rather than the mode of *production*, which is regarded as the necessary expression of the transhistorical forces of production (Postone, 1993, 4-10). The textual basis of a form-analytic approach is chapter one of volume one of Marx's *Capital* (Marx, 1976) where the implicit distinction between the historical development of society and Marx's dialectical presentation of its critical analysis can be found (Bellofiore and Redolfi Riva, 2015).

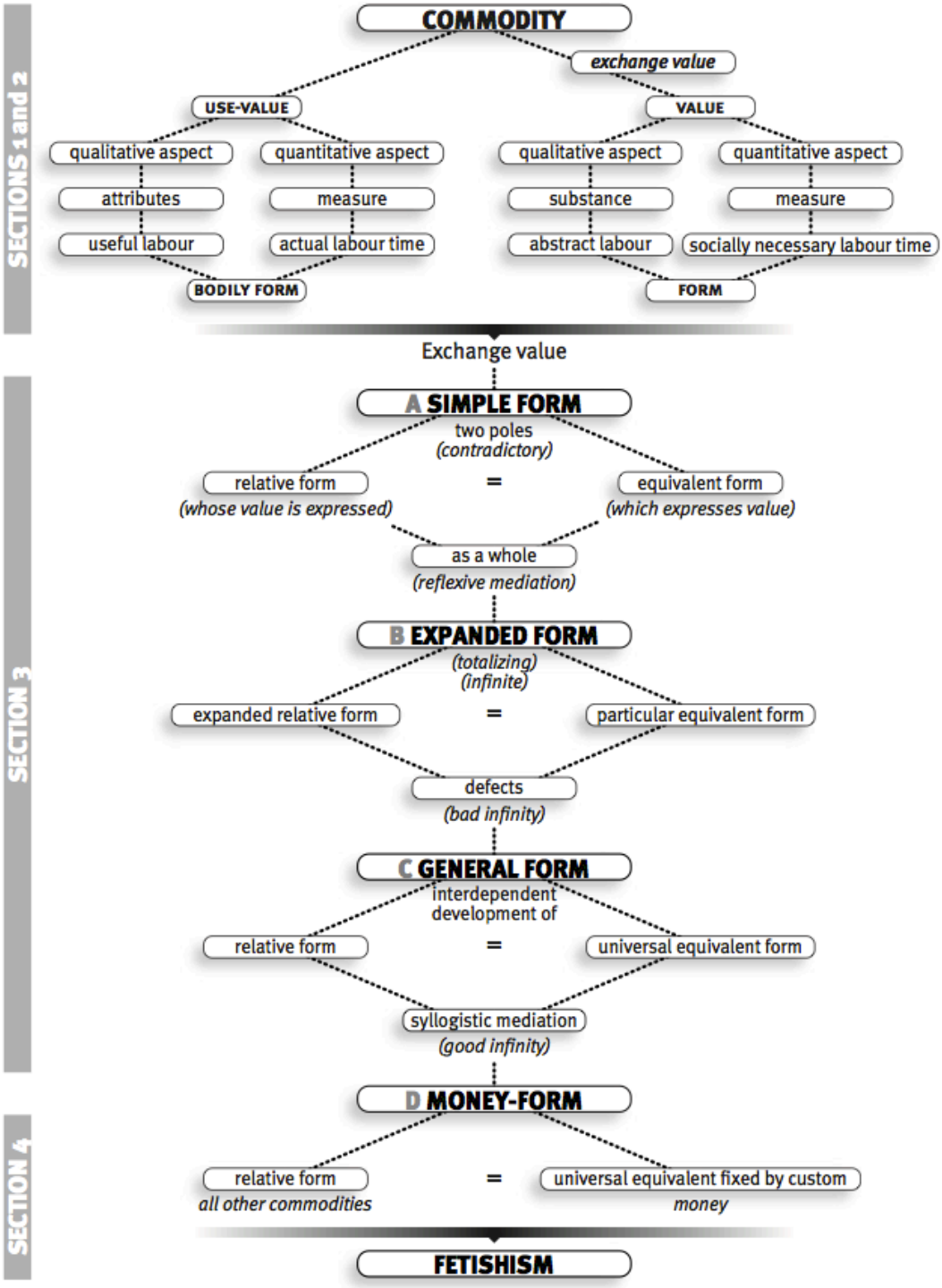

FIGURE 1: The social form of capitalism: Diagram of the structure of chapter 1 of Capital (Cleaver, 2000, 93. Used with permission)

An application of this form-analytic approach is demonstrated most clearly in my recent work (Winn, 2014; Winn, 2015a). In these articles I indicate the centrality of a value-form

analysis for understanding social relations in higher education, where the activities of teaching and learning can both be understood through the category of 'labour'. In discussing the commodity-form of open access publications (Winn, 2015a) I make a clear case for the way in which value mediates the production and exchange of knowledge in this specific form. In the preparation of this article, one reviewer questioned how something that is 'given away' for free, such as an open access article, can still be considered a commodity.

> *"If it is not exchanged on the market as a product for the realization of value, how then does it have exchange value? How does the manuscript produced for free sharing on an open access platform have exchange value? If it has no exchange value it does not have the dual character which would define it as a commodity." (Reviewer 2, 26/09/2014)*

The published version of my paper addresses this comment but I raise it again here because it highlights the difference between a form-analytic reading of Marx and a more traditional, economistic reading of his work.

A form-analytic reading of Marx's critique of capitalism places an emphasis on the totality of social processes (economic, political, ideological) and aims to expose the reified categories of economics, which represent the fetishized forms of appearance of social relations (Clarke, 1991, 9). The reviewer above has implicitly distinguished between the exchange relationship (the sphere of circulation) and the productive relationship between capital and labour. He/she does not recognise that in the exchange (i.e. value) relation the open access journal article is reduced to nothing more than a product of social homogenous labour. From the economistic viewpoint, it is as though the open access article has taken on a life of its own and if it is 'given away' for free, then there is no exchange relation and therefore no realisation of value. Yet, the social producers of

the article do not singularly work on discreet products that do or do not create value. They are advanced a wage for their contribution to the total social labour of their institution and the total social effort of that labour, including researching and writing the open access article, is the substance of value realised in exchange relations taking place across the institution. The open access article enters into circulation as capital and contributes to the production of total social value that is accounted for retrospectively in the money form.

The implications of a value-form analysis on our understanding of *all* social relations under capitalism is profound and as I have indicated (Winn, 2014), provides the theoretical justification for understanding the student as wage labourer and therefore the pedagogic relationship between teacher and student as one between divided labour, mediated by value, engaged with the means of knowledge production. Such a view informs my current research where, together with Mike Neary and other members of the Social Science Centre, we focus on the practical work of developing a democratically controlled, co-operative form of higher education, informed by a critique of the contradictory relationship between labour and capital and the emancipatory potential inherent in the capital relation (Neary and Winn, 2015). Such an approach understands the role of labour dialectically as both socially constituted and mediating (Postone, 1993) and the methods of our research are understood to be constituted by our immanent social conditions but also prefigurative of the emancipatory potential of our collective work.

References

Autonomous Geographies Collective (2010) Beyond Scholar Activism: Making Strategic Interventions Inside and Outside the Neoliberal University, *ACME: An International E-Journal for Critical Geographies*, 9 (2) 245-275.

Ball, S. (2003) The teacher's soul and the terrors of performativity, *Journal of Education Policy*, 18 (2) 215-228.

Bellofiore, R. and Redolfi Riva, T. (2015) The Neue Marx-Lektüre. Putting the critique of political economy back into the critique of society, *Radical Philosophy*, 189, 24-36.

Benjamin W. (1934) The Author as Producer. In: Jennings M., Eiland H. and Smith G. (eds) (2005) *Walter Benjamin: Selected Writings, Volume 2, 1927-1934*. Cambridge: Harvard University Press, 768–782.

Benkler, Y. (2006) *The Wealth of Networks*. New Haven: Yale University Press.

Bonefeld, W. (2014) *Critical Theory and the Critique of Political Economy*, London: Bloomsbury.

Clarke, S. (1979) The Value of Value, *Capital and Class*, 10, 1-17.

Clarke, S. (1991) *The State Debate*. Basingstoke: Palgrave Macmillan.

Cleaver, H. (2000) *Reading Capital Politically*. Oakland: AK Press.

Coffin, J. (2006) An analysis of open source principles in diverse collaborative communities. *First Monday*. Available from http://journals.uic.edu/ojs/index.php/fm/article/view/1342/1262 [Accessed 23 April 2015].

Conaty, Pat (2014) Social Co-operatives: a democratic co-production agenda for care services in the UK. Co-operatives UK. Available from

http://www.uk.coop/sites/storage/public/downloads/social_co-operatives_report.pdf [Accessed 23 April 2015].

Elbe, I. (2013) Between Marx, Marxism and Marxists – Ways of Reading Marx's Theory, *Viewpoint Magazine*. Available from https://viewpointmag.com/2013/10/21/between-marx-marxism-and-marxisms-ways-of-reading-marxs-theory [Accessed 23 April 2015].

Hall, R. and Winn, J. (2011) Questioning technology in the development of a resilient higher education. *E-Learning and Digital Media*, 8 (4) 343-356.

Hall, R. (2015) The University and the Secular Crisis. [in press] *Open Library of Humanities*.

Hodkinson, S. and Chatterton, P. (2006) Autonomy in the city? Reflections on the social centres movement in the UK, *CITY*, 10 (3) 305-315.

Holloway, J. (2005) *How to change the world without taking power*, London: Pluto Press.

Holloway, J. (2008) *Negativity and Revolution*. London: Pluto Press.

Huber, E. and Stephens, J. (2001) *Development and Crisis of the Welfare State*. Chicago: University of Chicago Press.

Hudis, P. (2012) *Marx's Concept of the Alternative to Capitalism*. Chicago: Haymarket Books.

Krisis Group (1999) *Manifesto Against Labour*. Available from http://www.krisis.org/1999/manifesto-against-labour [Accessed 23 April 2015].

Larsen, N., Nilges, M., Robinson, J. and Brown, N. (eds.) (2014) *Marxism and the Critique of Value*. Chicago: MCM' Books.

Magdoff, F. Foster, J. (2011) *What every environmentalist needs to know about capitalism*, New York: Monthly Review Press.

Marx, K. and Engels, F. (1975) *Marx and Engels Collected Works*, Volume 3. London: Lawrence and Wishart.

Marx, K. (1976) *Capital Volume 1*. London: Penguin.

McGettigan, A. (2013) *The Great University Gamble: Money, Markets and the Future of Higher Education*. London: Pluto Press.

Naidoo, R., Shankar, A. and Veer, E. (2011) The consumerist turn in higher education: Policy aspirations and outcomes, *Journal of Marketing Management,* 27 (11–12) 1142–1162.

Neary, M. (2012) Beyond Teaching in Public: The University as a Form of Social Knowing. In: Neary, M., Stevenson, H. and Bell, L. (eds.) *Towards Teaching in Public. Reshaping the Modern University*. London: Continuum, 148-164.

Neary, M. and Winn, J. (2009) The student as producer: reinventing the student experience in higher education. In: Bell, L., Neary, M. and Stevenson, H. (eds.) *The future of higher education: policy, pedagogy and the student experience*. London: Continuum, 126-138.

Neary, M. and Winn, J. (2012) Open education: common(s), commonism and the new common wealth. *Ephemera: Theory & Politics in Organization*, 12 (4) 406-422.

Neary, M. and Winn, J. (2015) Beyond Public and Private: A Model for Co-operative Higher Education. *Krisis* [forthcoming].

Noble, D. (1998) Digital diploma mills: The automation of higher education, *First Monday*, 3 (1). Available from http://firstmonday.org/ojs/index.php/fm/article/view/569/490 [Accessed 23 April 2015].

Palfreyman, D. and Tapper, T. (2014) *Reshaping the University: The Rise of the Regulated Market in Higher Education*. Oxford: Oxford University Press.

Pederson, J. M. 2010. Property, Commoning and the Politics of Free Software. *The Commoner*, 14. Available from http://www.commoner.org.uk/index.php?p=107 [Accessed 23 April 2015]

Postone, M. (1993) *Time, Labour and Social Domination*. Cambridge: Cambridge University Press.

Postone, M. (2003) The Holocaust and the Trajectory of the Twentieth Century. In: Postone, M. and Santner, E. (eds.) *Catastrophe and Meaning: The Holocaust and the Twentieth Century*.Chicago: University of Chicago Press, 81-114.

Rikowski, G. (2002) Fuel for the Living Fire: Labour-Power! In: Neary, M. and Dinerstein, A. (eds.) *The Labour Debate*. Aldershot: Ashgate Publishing Company, 179-202.

Roberts, M. (2009) *The Great Recession*. Available from https://archive.org/details/TheGreatRecession.ProfitCyclesEconomicCrisisAMarxistView [Accessed 23 April 2015].

Roggero, G. (2011) *The Production of Living Knowledge*. Philadelphia: Temple University Press.

Ross, K. (2002) *May '68 and Its Afterlives*. Chicago: University of Chicago Press.

Social Science Centre, Lincoln (2013) An experiment in free, co-operative higher education. *Radical Philosophy*, 182, 66-67.

Sohn-Rethel (1978) *Intellectual and Manual Labour*, New Jersey: Humanities Press.

Stallman, R. (2002) *Free software, Free Society: Selected essays of Richard Stallman* Boston: GNU Press.

Williams, J. (2006) The Pedagogy of Debt, *College Literature*, 33 (4) 155-169.

Winn, J. (2012) Open education: from the freedom of things to the freedom of people. In: Neary, M., Bell, L. and Stevenson, H. (eds.) *Towards teaching in public: reshaping the modern university*. London: Continuum, 133-147.

Winn, J. and Lockwood, D. (2013) Student as Producer is hacking the university. In: Beetham, H. and Sharpe, R. (eds.) *Rethinking pedagogy for a digital age*. London: Routledge, 218-229.

Winn, J. (2013) Hacking in the university: contesting the valorisation of academic labour. *tripleC: Communication, Capitalism and Critique*, 11 (2) 486-503.

Winn, J. (2014) Writing about academic labour. *Workplace: A journal for academic labour*, 25, 1-15.

Winn, J. (2015a) Open Education and the emancipation of academic labour. *Learning, Media and Technology*, 40 (3).

Winn, J. (2015b) The co-operative university: Labour, property and pedagogy. *Power and Education*, 7 (1) 39-55.

Wood, E. (2002) *The origin of capitalism: A longer view*. London: Verso.

Yeo, Stephen (1988) *New Views of Co-operation*, London: Routledge.

The Future of Higher Education

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10 The Student as Producer: Reinventing the Student Experience in Higher Education

Mike Neary and Joss Winn

Introduction

The university is one of the great success stories of the twentieth century, with numbers of students growing exponentially in the last fifty years. There are now more than 600 million students around the world, with no signs of this expansion slowing down (Wolf 2002). And yet, academics have argued that this success has come at a cost, with the intellectual and scientific mission of the university undermined by the way in which universities have allowed themselves to be redesigned according to the logic of market economics (Evans 2004).

Since the 1980s, universities, in response to government pressure, have become more business-like and enterprising to take advantage of the 'opportunities' presented by the so-called global 'knowledge economy' and 'information society' (Levidow 2002; Wright 2004). This process of corporatization of higher education is extended through the increasing regularization and intensification of the academic labour processes (Nelson and Watt 2003; De Angelis and Harvie 2006) and the reconfiguration of the student as consumer (Boden and Epstein 2006). The process of the student as consumer is driven by both the intensification and casualization of the graduate labour market which demands not only that students pay undivided attention to their employability, but also, at the same time, prepare themselves for periods of under-employability, un-employability, student poverty and debt (Bonefeld 1995; TUC-NUS 2006; Warmington 2007).

This controversial notion of student as consumer is much discussed in academic circles, but what is less well debated is the extent to which the basis of student life might be rearranged within higher education. The point of this re-arrangement would be to reconstruct the student as producer: undergraduate students working in collaboration with academics to create work of social importance that is full of academic content and value, while at the same time reinvigorating the university beyond the logic of market economics.

The nature and purpose of the university

The point at which we begin to reconstruct the student as producer begins with what is understood as the real nature or purpose of the university. There is no longer any consensus about the *idea* (Newman 1853) or the *uses* (Kerr 1963) of the university, if indeed there ever was.

While there may be no general agreement about its nature, it is clear that what constitutes the core activity of the university is teaching and research. The relationship between these two aspects of higher education is not straightforward; indeed higher education is characterized by the severe imbalance between teaching and research, leading to what has been called an 'apartheid' between student and teacher (Brew 2006). However, it is precisely this dysfunctionality that provides the catalyst for rethinking the relationship between research and teaching in a way that can construct a framework upon which to rebalance the basis of student life, providing the space to ask fundamental questions about the purposes of higher education (Brew 2006: 3).

This rationale for the relationship between teaching and research had already been established in European conventions through the *Magna Charta Universitatum*. In 1988, Rectors of European Universities gathered in Bologna and signed the *Magna Charta Universitatum* (EUA 1988) in which, as part of a wider debate about the role of the university in contemporary society, they set out the framework for an integrated system of European higher education.

The *Charta* set out some fundamental principles about the future of higher education in Europe, as well as outlining the means by which these fundamental principles could be achieved. Key to all of this was the issue of academic freedom for tutors and students and that central to the issue of academic freedom was the relationship between teaching and research. The principles included the assertion that to meet the needs of the world around it, research and teaching must be morally and intellectually independent of all political authority and economic power. Teaching and research in universities must be inseparable if tuition is not to lag behind changing needs, the demands of society and advances in scientific knowledge.

Cleary, there is more at stake than teaching students research skills. What is at issue is the recovery or the continuation of the university as a liberal humanist institution, based on some notion of the 'true university' and the 'public good'.

At around the same period in the US, Ernest Boyer was pointing out the imbalance between research and teaching and arguing for a reconfiguration of teaching and research, with teaching recognized as an important and fundamental part of academic life. Boyer provided a framework on which to consider the relationship between teaching and research, and was concerned with reinventing the relationship between teaching and learning in higher education in the US: 'The most important obligation now confronting colleges and universities is to break out of the tired old teaching versus research debate and define in more creative ways what it means to be a scholar' (Boyer 1990: xii).

Boyer encapsulated this debate with the creation of four categories of what he referred to as 'scholarship': the scholarship of discovery – research; the scholarship of integration – interdisciplinary connections; the scholarship of application and engagement – knowledge applied in the wider community; and the scholarship of teaching – research and evaluation of one's own teaching (Boyer 1990). The Boyer Commission, established in his name, set out to create its own *Magna Charta* for students in the form of an Academic Bill of Rights, which included the commitment for every university to provide 'opportunities to learn through enquiry rather than simple transmission of knowledge' (Boyer Commission 1999).

The origins of these versions of the liberal humanist university are found in the formulation that underpinned the framework for the first modern European university, the Friedrich Wilhelms University of Berlin founded in 1810. Inspired by the writings of Wilhelm Humboldt, Berlin University was organized around the principle of maintaining a close relationship between research and teaching.

In Humboldt's model (1810) of what he referred to as 'organic scholarship', the simple transmission of knowledge through lectures would be abandoned, with teaching taking place solely in seminars. Students were to be directly involved in the speculative thinking of their tutors, in a Socratic dialogue and in close contact, without strictly planned courses and curricula. Students should work in research communities with time for thinking and without any practical obligations.

Humboldt argued this in terms of academic freedom, not only between the student and their teacher, but in terms of the relationship between the university and the state. Humboldt's point was that in guaranteeing the academic freedom of the university, the state itself is regenerated by the way in which the university promotes and preserves the culture of the nation. In so

doing, what he described as a 'Culture State' is established, which includes a genuinely cultured population who are trained to act as independent and autonomous citizens.

Humboldt's model was quickly overwhelmed by what he feared most: the rise of industrial capitalism and the subsumption of the 'Culture State' by the 'Commercial State', to which the university became increasingly tied through government and private sector research contracts in a process where teaching became not only detached from research, but a subordinate and less profitable activity (Knoll and Siebert 1967).

Policy and practice in teaching and research

Despite the pre-eminence of the research agenda, the nature of the core activities of higher education makes it very difficult to detach research from teaching. Indeed, the importance of maintaining research in the undergraduate curriculum was recognized in the report by the Robbins Committee on Higher Education (1963): 'there is no borderline between teaching and research; they are complementary and overlapping activities' (Committee on Higher Education 1963: 181–2), even if the chance to do research was to be made available only to the best students in the best universities (Committee on Higher Education 1963).

A similar approach based on research in the undergraduate curriculum, although aimed at a very different kind of student, was developed in 1974 at North East London Polytechnic as a programme of 'independent study'. The essential difference between such independent study programmes and Robbins' ideas for providing research in the undergraduate curriculum was that the independent study programme was designed in a way that embodied 'left-wing' ideals and made for 'a completely different approach to Higher Education' – to meet the needs of the new type of student (Pratt 1997: 138).

This debate about the appropriateness of research in non-research intensive universities was reflected in the approach advocated by the White Paper on Higher Education (DfES 2003) for 'teaching only universities'. However, in the face of reasoned opposition, there was an acknowledgement by the government of the need for the post-1992 universities to develop 'research informed teaching environments' (DfES 2003; Healey et al. forthcoming).

The creation of a research environment that included undergraduate students has been encouraged by the ways in which leading US universities are linking undergraduate teaching and research. Stanford and Massachusetts Institute of Technology, most notably, have developed their own undergraduate research programmes, known generally as Undergraduate Research Opportunity Programmes. The point of these programmes is that undergraduate students work in collaboration with academics on real research projects, presenting their findings at conferences and authoring joint papers. In the United Kingdom, the lead in creating this kind of research environment for undergraduate students was taken by University of Warwick and Imperial College, London, although a number of other institutions have now followed suit. Following the success of these schemes the Higher Education Academy and the Scottish Executive Enhancement Committee have made the establishment of links between research and teaching in undergraduate programmes a key priority.

As the issue of connections between research and teaching has climbed higher up the higher education agenda the amount of research into this area has increased. One of the most unsettling conclusions was that the links between teaching and research are not nearly so well established as had been imagined (Hattie and Marsh 1996). While students enjoyed being involved with a research intensive university their actual experiences were not always positive (Zamorski 2002).

However with the closer engagement between research and teaching, where students are engaged in research-like and research-related activities, the results become much more positive. A number of powerful arguments emerge as to why and how research-based teaching and learning can raise the level and quality of teaching and learning in higher education. These include the notion that research-based learning effectively develops critical academic and evaluative skills that are used to support problem-based and inquiry-based learning and to raise the level of more traditional project work (Wieman 2004). This style of learning also equips students to continue learning after tertiary study, making links to the lifelong-learning agenda (Brew 2006). Other points in favour of research-based learning are that it encourages students to construct knowledge through increasing participation within different communities of practice (Cole 1990; Scribner 1985); this can be set against the positivist model of teaching, where faculty experts are transmitters of knowledge to the passive student recipient. It is also argued that this model of research-based learning exemplifies a social-constructivist view of learning (Vygotsky 1962, 1978; Bruner 1986; Barr and Tagg 1995).

As well as encouraging participation and retention at the same time as 'elevating degree aspirations' and degree completion, research-based learning increases the likelihood that students will decide to go on to postgraduate work (Pascarella and Terenzini 2005). Moreover, recent research points to the fact that research-based learning is an attractive option for students across all ages and agendas, and particularly among mature and part-time students (Smith and Rust 2007).

Centres for Excellence in Teaching and Learning (CETLs)

In the United Kingdom, some of the most significant progress in linking teaching and research has been achieved by the CETLs that were set up in 2005 to promote research and enquiry-based learning. These include the Centre for Inquiry-Based Learning in the Arts and Social Sciences at Sheffield University (**www.shef.ac.uk/cilass**) which is providing rich evidence of the value of inquiry-based learning across a wide range of disciplines, from the first year of undergraduate study to taught Master's level. Part of their work is designing experimental teaching spaces: 'collaboratories' to encourage engagement between teachers and students. The Centre for Applied Undergraduate Research Skills at the University of Reading (**www.engageinresearch.ac.uk**) has established 'Engage', an interactive research resource for undergraduate bioscience students. At Sheffield Hallam (**extra.shu.ac.uk/cetl/cplahome.html**), students involved with the Centre for Promoting Learner Autonomy take responsibility for their learning and work in partnership with tutors and other students. This involves high levels of trust and risk taking by all concerned.

The work done by these CETLs contributes to the development of the research-based teaching agenda, but what these CETLs do not do is explicitly link the developments in teaching and learning with the debate about the real nature or the idea of the university.

The Reinvention Centre for Undergraduate Research (www.warwick/ac.uk/go/reinvention), a collaborative CETL based in the Sociology department at the University of Warwick and the School of the Built Environment at Oxford Brookes, has attempted to connect the developments in teaching and learning with the debate about the future of the university (Neary et al. 2007).

The work of the Reinvention Centre is informed by the most progressive discourses of teaching and learning, such as Boyer – from whose Reinvention Commission the centre gets its name – in dialogue and debate with social science critical traditions. The result is a more radical agenda than is normally found in mainstream teaching and learning activity, but one that is grounded in the traditions of its own subject areas. The framework within which the Reinvention Centre defines its activity within the CETL programme is one of Skelton's excellence paradigms: the concept of 'critical excellence' (Skelton 2005).

The critical approach to excellence, as defined by the Reinvention Centre, sees institutional change as the outcome of conflict and struggle, forming part of a much *wider social, political and economic context beyond the institution*. This approach, which can claim much of its legitimacy from the student protests in 1968, and the progressive forms of teaching and learning that developed out of these protests, aims to radically democratize the process of knowledge production at the level of society. For this critical model, institutional and social change is not simply the product of incremental policy changes, strategic planning or teaching innovation, but emerges out of much wider social, political and economic processes, resulting in 'paradigm shifts' (Kuhn 1970) and revolutionary transformations in the practice of teaching and learning.

Critical in this sense does not mean 'negative judgements', but rather, negative dialectics (Adorno 1966) – the positive power of negative thinking (Fuller 2005), or the awareness of the progressive possibilities that are inherent in even the most contradictory and dysfunctional contexts. This approach is inspired by the Frankfurt School including, among others, the work of Walter Benjamin, one of the most creative modern Marxist thinkers.

In *Life of Students*, Benjamin writes about the separated nature of higher education, as 'a gigantic game of hide and seek in which students and teachers, each in his or her own unified identity, constantly push past one another without ever seeing one another' (Benjamin 1915: 39). Even in the early twentieth century, Benjamin was critical of the lecture and seminar formats:

> *The most striking and painful aspect of the university is the mechanical reaction* of the students as they listen to a lecture [and seminars which] mainly rely on the lecture format, and it makes little difference whether the speakers are teachers or students. (Benjamin 1915: 42)

Benjamin had his own version of student as producer, referring back to the origins of the Humboldtian university:

> The organisation of the university has ceased to be grounded in the productivity of its students, as its founders had envisaged. They thought of students as teachers and learners at the same time; as teachers because productivity implies complete autonomy, with their minds fixed on science instead of the instructors' personality. (Benjamin 1915: 42)

By the 1930s, in an article entitled 'Author as Producer', Benjamin extended these ideas of productive autonomy between students and teachers and looked beyond the university to include relationships between authors and their readers. The purpose of these connections was to find ways in which intellectuals might engage with matters of serious social concern in practices that lay beyond simply being committed to an issue, or through disengaged academic forms of solidarity.

Benjamin argued that intellectual work could only be politically progressive if it satisfied two criteria. First, it must be of high quality, and second, it must seek actively to intervene in 'the living context of social relations', what Benjamin referred to as the 'organising function', in ways that seek to create progressive social transformation:

> [For] . . . the author who has reflected deeply on the conditions of present day production . . . His work will never be merely work on products but always, at the same time, work on the means of production. In other words his products must have, over and above their character as works, an organizing function. (Benjamin 1934: 777)

The organizing function within which Benjamin was writing was the social relations of capitalist production, defined through the logic of waged labour and private property. For Benjamin, the imperatives of capitalist production had led to the horrors of Bolshevism and Fascism. Therefore, any alternative form of the organizing principle must be antithetical to these extreme types of political systems and be set up on the basis of democracy, collectivism, respective for legitimate authority, mutuality and social justice.

Benjamin offered examples of this type of organizing principle from the most progressive forms of political art: Dada, Brecht's Epic Theatre and experimental Russian avant-garde art. Key to these art forms was involving the reader and spectator in the process of production: not only are they the

producers of artistic content, but collaborators of their own social world; the subjects rather than objects of history.

> What matters is the exemplary character of production, which is able, first, to induce other producers to produce, and, second, to put an improved apparatus at their disposal. And this apparatus is better, the more consumers it is able to turn into producers – that is, readers or spectators, into collaborators. (Benjamin 1934: 777)

In the context of the modern university, the organizing function is the law of market economics, redefined in the contemporary period as the neo-liberal university. While the dangers that defined Benjamin's world have been overcome, the risk of the re-emergence of regressive political movements has not been eradicated and new risks and possible catastrophes have emerged that place human society in peril. The question remains as to the extent to which market economics is implicated in these social, political and economic hazards and what kind of alternative organizing principles might be invented as progressive alternatives.

The Reinvention Centre offers no simple solutions to these questions; rather, following Benjamin, it pays attention to the quality of its academic outputs and considers its position in relation to the organizational function of the university and the social, economic and political context from which it is derived. Taking its cue from Benjamin's 'Author as Producer', the Reinvention Centre has challenged the consumerist discourse that pervades the student experience by inventing the concept of the student as producer. Building on work that is already ongoing in the academy and in debate with colleagues working in the most progressive liberal humanist traditions, the Reinvention Centre has been pushing the idea of the student as producer to the limits of its critical potential, as reflected in the nature and character of its work with students (**www.warwick.ac.uk/go/reinvention**). This work has included publishing an edited collection of student work, developing an online undergraduate student journal and writing and producing films with students (Neary et al. 2007).

General intellect

In the most recent period progressive Marxist writing on universities has focused on the notion of the 'general intellect'. The general intellect, Marx argued, is the inventive, creative force of capitalism.

> Nature builds no machines, no locomotives, railways, electric telegraphs, self-acting mules etc. These are products of human industry: natural material

> transformed into organs of the human will over nature, or of human participation in nature. They are organs of the human brain, created by the human hand: the power of knowledge, objectified. The development of fixed capital indicates to what degree general social knowledge has become a direct force of production, and to what degree, hence, the conditions of the process of social life itself have come under the control of the general intellect and been transformed in accordance with it. (Marx 1993: 706)

Dyer-Witheford has shown that Marx's notion of the general intellect is mobilized by the automation of machinery and the development of transportation and communication networks integrated into the 'world market' (Dyer-Witheford 1999: 484). This mobilization of the general intellect increasingly subordinates and eliminates the need for human labour and therefore the very thing on which capitalist expansiveness is based. Furthermore, Marx argued that technoscientific development which relies on the general intellect is increasingly a social, co-operative endeavour. As we come to realize this, the organizing principles on which capitalist production is based, wage labour and private ownership, become increasingly irrelevant.

> Automation and socialisation together create the possibility of – and necessity for – dispensing with wage labour and private ownership. In the era of general intellect 'Capital thus works towards its own dissolution as the form dominating production'. (Dyer-Witheford 1999: 485)

However, as capitalism continues to thrive on technological innovation and development, Marx's general intellect is found to be not 'general' at all but, rather, structured and hierarchical. Knowledge remains contained, under control and restricted to the privileged under the logic of the information society and the knowledge economy. The point and the problem is how to generalize and socialize Marx's general intellect in order to resist what Noble argues is, within the university context, the 'systematic conversion of intellectual activity into intellectual capital, and, hence, intellectual property' (Noble 1998). In order to generalize the general intellect, the issue becomes not mass education but the notion of 'mass intellectuality' (Virno 1996; Virno and Hardt 1996; Hardt and Negri 2000).

Dyer-Witheford shows that what Marx defined as the 'general intellect' is now better understood as the 'mass intellect'. This is the social body of knowledge, modes of communication and co-operation and even ethical preoccupations which both supports *and* transgresses the operation of a high-tech economy. It is not knowledge created by and contained within the university, but is the 'general social knowledge' embodied by and increasingly available

to all of us. The quintessential expression of this general social knowledge or 'mass intellect' is, Dyer-Witheford argues, the internet:

> The development of this extraordinarily powerful technology has in fact depended on a mass of informal, innovatory, intellectual activity – 'hacking' – on whose creativity commerce constantly draws even as it criminalizes it. It was precisely out of capital's inability to contain such activity that there emerged the astounding growth of the Internet. This is surely the quintessential institution of 'general intellect'. For, despite all the admitted banalities and exclusivities of Internet practice, one at moments glimpses in its global exchanges what seems like the formation of a polycentric, communicatively-connected, collective intelligence. (Dyer-Witheford 1999: 498)

Mass intellectuality thrives on the porosity of the internet, leaking into emerging spaces and flowing against capital's networks, transgressing intellectual property on an epidemic scale.

For the progressive academic and student producer, a model for an alternative organizing principle exists in the various forms of Free Culture, a movement defined by the work of Lawrence Lessig and further enabled by the development of the Creative Commons licences. Lessig and others before him focus on the way traditional copyright law works against the development of mass intellectuality by restricting creativity and the collaborative, derivative development of knowledge. The dominant culture, he argues, is a 'permission culture', one in which 'creators get to create only with the permission of the powerful, or of creators from the past' (Lessig 2004: xiv).

Using rights guaranteed by copyright law, creative works produced under forms of this license can be distributed and modified by anyone, as long as the work remains attributable to the original authors (**creativecommons.org**). Dyer-Witheford (1999) refers to 'hackers', using the term in the original sense of someone who delights in a complete understanding of internal working of a computer system. These hackers have successfully employed similar 'open source' licenses for over twenty years (St. Laurent 2004) to protect both their work and its means of production. A Creative Commons license provides legal protection for copyright holders who wish to contribute to an open, social body of knowledge which transgresses the dominant operations of a capitalist economy by explicitly renouncing traditional intellectual property rights, and contributes to a mass intellect in commons. The Free Culture movement, based upon collaboratively producing intellectual and creative works under Creative Commons style licenses, therefore resists the restrictive control of traditional forms of legal protection designed to support the notion of

'intellectual property' and the 'permissive' economic model by which capital trades in such questionable assets (Lessig 2004). This enables both students and academics to do more than restructure curricula and pedagogy, but to challenge the very organizing principles upon which academic knowledge is currently being transmitted and produced. In this way, the student can truly be seen as a producer of knowledge.

Conclusion

In this chapter, we have set out to provide an overview of recent critical responses to the corporatization of higher education and the configuration of the student as consumer. We have also discussed the relationship between the core activities of teaching and research and reflected on both nineteenth century discourse and more recent efforts to re-establish the university as a liberal humanist institution, where teaching and research are equal and fundamental aspects of academic life. While recognizing recent efforts which acknowledge and go some way to addressing the need for enquiry-based learning and constructivist models of student participation, we have argued that a more critical approach is necessary to promote change at an institutional level. This critical approach looks at the wider social, political and economic context beyond the institution and introduces the work of Benjamin and other Marxist writers who have argued that a critique of the social relations of capitalist production is central to understanding and remodelling the role of the university and the relationship between academic and student.

The idea of student as producer encourages the development of collaborative relations between student and academic for the production of knowledge. However, if this idea is to connect to the project of refashioning in fundamental ways the nature of the university, then further attention needs to be paid to the framework by which the student as producer contributes towards mass intellectuality. This requires academics and students to do more than simply redesign their curricula, but go further and redesign the organizing principle, (i.e. private property and wage labour), through which academic knowledge is currently being produced. An exemplar alternative organizing principle is already proliferating in universities in the form of open, networked collaborative initiatives which are not intrinsically anti-capital but, fundamentally, ensure the free and creative use of research materials. Initiatives such as Science Commons, Open Knowledge and Open Access, are attempts

by academics and others to lever the internet to ensure that research output is free to use, re-use and distribute without legal, social or technological restriction (**www.opendefinition.org**). Through these efforts, the organizing principle is being redressed creating a teaching, learning and research environment which promotes the values of openness and creativity, engenders equity among academics and students and thereby offers an opportunity to reconstruct the student as producer and academic as collaborator. In an environment where knowledge is free, the roles of the educator and the institution necessarily change. The educator is no longer a delivery vehicle and the institution becomes a landscape for the production and construction of a mass intellect in commons.

References

Adomssent, M., Godemann, J. and Michelsen, G. (2007), 'Transferability of approaches to sustainable development at universities as a challenge', *International Journal of Sustainability in Higher Education*, 8, (4), 385–402.

Adorno, T. W. (1966), *Negative Dialectics* trans. E. B. Ashton (1973). New York: Seabury Press.

Aldrich, C. T. (2006), 'E-Learning in the workplace', *Training and Development*, 60, (9), 54–60.

Allan, C., Blackwell, R. and Gibbs, G. (2003), 'Developing the subject dimension to staff development', in R. Blackwell and P. Blackmore (eds), *Towards Strategic Staff Development in Higher Education*. Berkshire: Open University, pp. 66–78.

Allen, M. (1988), *The Goals of Universities*. Buckingham: SRHE/Open University Press.

Anderson, P. (2007), 'What is Web 2.0? Ideas, technologies and implications for education', *JISC Technology and Standards Watch*, [online] www.jisc.ac.uk/media/documents/techwatch/tsw0701b.pdf.

Anderson, T. and Elloumi, F. (2004), 'Introduction', in T. Anderson and F. Elloumi (eds), *Theory and Practice of Online Learning*. Canada: Athabasca University, pp. xiii–xxiv.

Arthur, M. and Lindsay, V. J. (2006), *Knowledge at Work: Creative Collaboration in the Global Economy*. London: Blackwell.

Atherton, J. S. (2005), *Learning and Teaching: Cognitive Dissonance and Learning*. [online] www.learningandteaching.info/learning/dissonance.htm.

Attali, J. (1998), *Pour un Modèle Européen d'Enseignement Supérieur*. Paris: Ministère de l'Éducation Nationale, de la Recherche et de la Technologie.

Attwood, R. (2008), 'Probe ordered into "manipulation" ', *Times Higher Education Supplement*, 28 February.

Bamber, J., Ducklin, A. and Tett, L. (2000), 'Working with contradictions in the struggle for access', in J. Thompson (ed.), *Stretching the Academy*. Leicester: NIACE, pp. 158–70.

Barnett, R. (2000), *Realising the University in an Age of Supercomplexity*. Buckingham: Society for Research into Higher Education with Open University Press.

Barnett, R. (2005a), 'Introduction', in R. Barnett (ed.) *Reshaping the University: New Relationships between Research, Scholarship and Teaching*. Maidenhead: Society for Research into Higher Education and Open University Press, pp. 1–8.

Barnett, R. (2005b), 'Recapturing the universal in the university', *Educational Philosophy and Theory*, 37, (6), 785–97.

Barnett, R. (ed.) (2005c), *Reshaping the University: New Relationships between Research, Scholarship and Teaching*. Berkshire: Open University Press.

Barnett, R. (2007), *A Will To Learn: Being a Student in an Age of Uncertainty*. Maidenhead and New York: Society for Research into Higher Education.

Barnett, R. and Temple, P. (2006), *Impact on Space of Future Changes in Higher Education* (UK Higher Education Space Management Project, 2006–2010). Bristol: Higher Education Funding Council for England.

Barr, R. and Tagg, J. (1995), 'From teaching to learning: a new paradigm for undergraduate education', [online] **critical.tamucc.edu/~blalock/readings/tch2learn.htm**.

Barth, M., Godemann, J., Riechmann, M. and Stoltenberg, U. (2007), 'Developing key competencies for sustainable development in higher education', *International Journal of Sustainable Development in Higher Education*, 8, (4), 416–30.

Becher, T. and Kogan, M. (1983), 'A model for higher education', in O. Boyd-Barrett, T. Bush, J. Goodey, I. McNay and M. Preedy (eds), *Approaches to Post-School Management*. London: Harper and Row, pp. 14–28.

Becher, T. and Trowler, P. (2001), *Academic Tribes and Territories: Intellectual Enquiry and the Culture of Disciplines*. Buckingham: SRHE with Open University Press.

Beckerman, W. (1994), 'Sustainable development: is it a useful concept?', *Environmental Values*, 3, (3), 191–209.

Bell, D. (1973), *The Coming of the Post-Industrial Society*. New York: Basic Books.

Bell, L. (2007), *Perspectives on Educational Management and Leadership*. London: Continuum Books.

Bell, L. and Stevenson, H. (2006), *Education Policy: Process, Themes and Impact*. London: Routledge.

Bell, M. and Bell, W. (2005), 'It's installed . . . now get on with it! Looking beyond the software to the cultural change', *British Journal of Educational Technology*, 36, (4), 643–56.

Beloff, M. (1968), *The Plate Glass Universities*. London: Secker and Warburg.

Benjamin, W. (1915), 'The life of students', in M. Bullock and M. W. Jennings (eds) (2004), *Walter Benjamin: Selected Writings, Volume 1, 1913–1926*. Harvard: Harvard University Press, pp. 37–47.

Benjamin, W. (1934), 'The author as producer', in M. W. Jennings, H. Eiland and G. Smith (eds) (2005), *Walter Benjamin: Selected Writings, Volume 2, 1927–1934*. Harvard: Harvard University Press, pp. 768–82.

Bergan, S. (2003), 'Institutional autonomy between myth and responsibility', in *Autonomy and Responsibility: The University's Obligations for the XXIst Century*. Bologna: Bononia University Press, pp. 49–67.

Berners-Lee, T. (1997), 'Realising the full potential of the Web', [online] www.w3.org/1998/02/Potential.html

Biggs, J. (2003), *Teaching for Quality Learning at University: What the Student Does*. Maidenhead: Society for Research into Higher Education and Open University Press.

Billett, S. R. (2002), 'Critiquing workplace learning discourses: participation and continuity at work', *Studies in the Education of Adults*, 34, (1), 56–67.

Blackmore, P. and Blackwell, R. (2003), 'Academic roles and relationships' in R. Blackwell and P. Blackmore (eds), *Towards Strategic Staff Development in Higher Education*. Berkshire: Open University Press, pp. 16–28.

Blackmore, P. and Blackwell, R. (2006), 'Strategic leadership in academic development', *Studies in Higher Education*, 31, (3), 373–87.

Blackwell, R. and Blackmore, P. (eds) (2003a), *Towards Strategic Staff Development in Higher Education*. Berkshire: Open University Press.

Blackwell, R. and Blackmore, P. (2003b), 'Rethinking strategic staff development', in R. Blackwell and P. Blackmore (eds), *Towards Strategic Staff Development in Higher Education*. Berkshire: Open University Press, pp. 3–15.

Bligh, D. (1972), *What's the Use of Lectures?* Harmondsworth: Penguin.

Bloom, B. S. and Krathwol, D. R. (1956), *Taxonomy of Educational Objectives: The Classification of Educational Goals*. New York: David McKay Company, Inc.

Boden, R. and Epstein, D. (2006), 'Managing the research imagination? Globalisation and research in higher education', *Globalisation, Societies and Education,* 4, (2), 223–36.

Bohner, G. and Wänke M. (2002), *Attitudes and Attitude Change*. Sussex: Psychology Press.

Bonefeld, W. (1995), 'The politics of debt: social discipline and control', *Common Sense*, 17, June, [online] www.wildcat-www.de/en/material/cs17bone.htm

Bourgeois, E. and Frenay, M. (2001), University Adult Access Policies and Practices across the European Union, and their Consequences for the Participation of Non-Traditional Adults. Final Report to the European Commission of TSER Project SOE2-CT97–2021.

Bowl, M. (2003*), Non-traditional Entrants to Higher Education: 'They Talk About People Like Me'*. Stoke on Trent: Trentham.

Boyer, E. (1990), *Scholarship Reconsidered: Priorities for the Professoriate*. Princeton, NJ: Carnegie Foundation for the Advancement of Teaching.

Boyer Commission (1999), *Reinventing Undergraduate Education: A Blueprint for America's Research Universities*. Stony Brook, NY: Carnegie Foundation for University Teaching.

Brady, T., Marchall, N., Prencipe, A. and Teli, F. (2002), 'Making sense of learning landscapes in project-based organisations', paper presented at the Third European Conference on Organizational Knowledge, Learning and Capabilities, Athens, Greece, 5–6 April.

Brennan, J. and Jary, D. (2005), What is Learned at University? SOMUL Working Paper 1, York: Higher Education Academy.

Brennan, J. and Osborne, M. (2005), The Organisational Mediation of University Learning. SOMUL Working Paper 2, York: Higher Education Academy.

Brennan, J. and Williams, R. (2004), Collecting and using student feedback, a guide to good practice. CHERI [online] www.heacademy.ac.uk/resources/detail/Collecting_and_using_student_feedback.

Brew, A. (2006), *Research and Teaching: Beyond the Divide*. Basingstoke: Palgrave Macmillan.

Bricall, J. M. (2000), *Universidad Dos Mil* ('Informe Bricall'). Madrid: CRUE.

Broers, A. (2005), 'University courses for tomorrow' the third annual Higher Education Policy Institute lecture, Royal Institution, London, 24 November, [online] www.hepi.ac.uk/pubdetail.asp?ID=188&DOC=Lectures.

Brown, J. S. and Duguid, P. (1995), 'The university in the digital age', [online] www.johnseely-brown.com/DigitalU.pdf.

Bruner, J. (1986), *Actual Minds, Possible Worlds*. Cambridge, MA: Harvard University Press.

Buchan, G. D., Spellerberg, I. F. and Blum, W. E. H. (2007), 'Education for sustainability: developing a postgraduate-level subject with an international perspective', *International Journal for Sustainability in Higher Education*, 8, (1), 4–15.

Burgess, T. (1979), 'New ways to Learn'. *Journal of the Royal Society of Arts*, 128, 143–55.

Bush, V. (1945), *Science: The Endless Frontier*. Washington: United States Government Printing Office.

Calder, W. and Clugston, R. M. (2003), 'Progress toward sustainability in higher education', *Environmental Law Reporter*, 33, 1003–23.

Carroll, J. and Appleton, J. (2001), Plagiarism: A good practice guide. [online] www.jisc.ac.uk/uploaded_documents/brookes.pdf.

Castells, M. (2000), *The Rise of the Network Society*. Oxford: Blackwell.

Chiddick, D. (2006), 'Performing in a blend of real and virtual worlds', in DEGW, Working to learn, learning to work: Design in educational transformation, 4th Annual Foundation Lecture, pp. 22–4.

Chiddick, D. (2007), 'Learning landscapes', unpublished lecture, Senior Management Group, University of Lincoln.

CIBER (2008), Information behaviour of the student of the future. CIBER Briefing Paper. [online] www.ucl.ac.uk/slais/research/ciber/downloads/.

Claxton, G. (1994), 'Involuntary simplicity: changing dysfunctional habits of consumption', *Environmental Values*, 3, 71–8.

Clegg, S. (2003a), 'Learning and teaching policies in higher education: mediations and contradictions of practice', *British Educational Research Journal*, 29, (6), 803–19.

Clegg, S. (2003b), 'Problematising ourselves: Continuing Professional Development in higher education', *International Journal for Academic Development*, 8, (1/2), 37–50.

Clugston, R. M. and Calder, W. (1999), 'Critical dimensions of sustainability in higher education', in W. Leal Filho (ed.), *Sustainability and University Life*. Frankfurt: Peter Lang, pp. 31–46.

Cole, M. (1990), 'Cognitive development and formal schooling; the evidence from cross-cultural research', in L. Moll (ed.), *Vygotsky and Education: Instructional Implications and Applications of Sociohistorical Psychology*. Cambridge: Cambridge University Press, pp. 89–110.

Collier, K. (1982), 'Ideological influences in higher education', in *Studies in Higher Education*, 7, (1), 13–19.

Collis, B. (1999), 'Telematics-supported education for traditional universities in Europe', *Performance Improvement Quarterly*, 12, (2), 36–65.

Colucci-Gray, L. (2006), 'From scientific literacy to sustainability literacy: an ecological framework for education', *Science Education*, 90, (2), 227–52.

Committee on Higher Education (1963), Higher Education Report of the Committee appointed by the Prime Minister under the Chairmanship of Lord Robbins 1961–1963 (The Robbins Report). London: HMSO Cmnd 2154.

Conole, G., de Laat, M., Dillon, T. and Darby, J. (2006), LXP: Student experiences of technologies. Final report. [online] www.jisc.ac.uk/media/documents/programmes/elearning_pedagogy/lxp%20project%20final%20report%20dec%2006.pdf.

Cortese, A. (1999), *Education for Sustainable Development: The Need for a New Human Perspective*. Boston, MA: Second Nature.

Cotton, D. R. E., Warren, M. F., Maiboroda, O. and Bailey, I. (2007), 'Sustainable development, higher education and pedagogy: a study of lecturers' beliefs and attitudes', *Journal of Environmental Education Research*, 13, (5), 579–97.

Creanor, L., Trinder, K., Gowan, D. and Howells, C. (2006), LEX: The learner experience of e-Learning. Final report. [online] www.jisc.ac.uk/uploaded_documents/LEX%20Final%20Report_August06.pdf

Crowther, J., Martin, I. and Shaw, M. (2000), 'Turning the discourse', in J. Thompson (ed.), *Stretching the Academy*. Leicester: NIACE, pp. 171–85.

CRQ (Centre for Research into Quality) (2006), Student satisfaction electronic pilot. [online] www0.bcu.ac.uk/crq/electronic.htm

Cullingford, C. (2002), 'Institutional development and professional needs: some reflections', in G. Trorey and C. Cullingford (eds), *Professional Development and Institutional Needs*. Aldershot: Ashgate Publishing, pp. 223–35.

Cutright, M. (ed.) (2001), *Chaos Theory and Higher Education: Leadership, Planning and Policy*. New York: Peter Lang.

D'Andrea, V. and Gosling, D. (2005), *Improving Teaching and Learning in Higher Education: A Whole Institution Approach*. Berkshire: Open University Press.

De Angelis, M. and Harvie, D. (2006), Cognitive capitalism and the rat race – how capitalism measures ideas and affects. [online] www.geocities.com/immateriallabour/angelisharvieabstract2006.html

Dealty, R. (2002), 'The real-time corporate university becomes a reality', *Journal of Workplace Learning*, 14, (8), 340–8.

DEFRA (1999), *A Better Quality of Life – Strategy for Sustainable Development for the United Kingdom*. Department for Environment, Food and Rural Affairs, Cmnd 4345.

DEFRA (2005), *Securing the Future: Delivering UK Sustainable Development Strategy*. Department for Environment, Food and Rural Affairs, 6467.

DEGW (2006), 'Working to learn, learning to work: design in educational transformation', 4th Annual Foundation Lecture, DEGW, [online] www.DEGW.com.

DEGW (2007), Learning landscape. [online] www.buffalo.edu/ub2020/plan/files/forum1/Learning-Landscape.pdf

Dewey, J. (1963*), Experience in Education*. New York: MacMillan.

DfES (Department for Education and Skills) (2003), *The Future of Higher Education*. Norwich: The Stationery Office.

Dill, D. D. (2005), 'The degradation of the academic ethic: teaching, research and the renewal of professional self-regulation', in R. Barnett (ed.), *Reshaping the University*. Berkshire: Open University Press, pp. 178–91.

Domask, J. (2007), 'Achieving goals in higher education: an experiential approach to sustainability studies', *International Journal of Sustainability in Higher Education*, 8, (1), 53–68.

Downes, S. (2004), 'Educational blogging', *Educause Review*, 39, (5), 14–26. [online] www.educause.edu/pub/er/erm04/erm0450.asp?bhcp=1

Drucker, P. (1969), *The Age of Discontinuities*. London: Transaction Publications.

Dworkin R. (1996), 'Objectivity and truth: you'd better believe it', *Philosophy & Public Affairs*, 25, 87–139.

Dyer-Witheford, N. (1999), *Cyber-Marx: Cycles and Circuits of Struggle in High-Technology Capitalism*. Urbana and Chicago: University of Illinois Press.

Edwards, B. (2000), *University Architecture*. London: Spon Press.

Edwards, R. and Usher, R. (eds) (2003), *Space, Curriculum and Learning*. Greenwich, CT: IAP.

Elton, L. (1994), *Management of Teaching and Learning: Towards Change in Universities*. London: CVCP/SRHE.

Enders, J. and de Weert, E. (2004), *The International Attractiveness of the Academic Workplace in Europe*. Frankfurt/Main: Gewerkschaft Erziehung und Wissenschaft.

Erwin, P. (2001), *Attitudes and Persuasion*. Sussex: Psychology Press.

ETL (2000/2001), Enhancing teaching-learning environments in undergraduate courses (Project Proposal to ESRC). University of Edinburgh. [online] www.ed.ac.uk/etl

ETL (2002), ETL Project Progress Report. [online] www.ed.ac.uk/etl

ETL (2003), ETL Project Progress Report. [online] www.ed.ac.uk/etl

ETL (2004), ETL Project Progress Report. [online] www.ed.ac.uk/etl

ETL (2005), ETL Project Progress Report. [online] www.ed.ac.uk/etl

EUA (European Universities Association), (1988), *Magna Charta Universitatum*. Bologna: EUA.

Evans, M. (2004), *Killing Thinking: The Death of the Universities*. London and New York: Continuum Press.

Farrell, H. (2005), 'The blogosphere as a carnival of ideas', *Chronicle of Higher Education*, [online] chronicle.com/free/v52/i07/07b01401.htm

Fearn, H. (2008), 'Clocking on', *Times Higher Education Supplement*, 1 May.

Field, J. (2002), 'Governing the ungovernable: why lifelong learning policies promise so much yet deliver so little', in R. Edwards, N. Miller, N. Small and A. Tait (eds), *Supporting Lifelong Learning* Volume 3, Making Policy Work. London: Routledge, pp. 201–16.

Fisch, K. (2007), 'Is it okay to be a technologically illiterate teacher?', [online] thefischbowl.blogspot.com/2007/09/is-it-okay-to-be-technologically.html

Flint, R. W., McCarter, W. and Bonniwell, W. M. A. T. (2000), 'Interdisciplinary education in sustainability: links in secondary and higher education. The Northampton Legacy Program', *International Journal of Sustainability in Higher Education*, 1, (2), 191–202.

Forsyth, A. and Furlong, A. (2000), *Socioeconomic Disadvantage and Access to Higher Education*. Bristol: Policy Press.

Foucault, M. (2005), *History of Madness*, trans. J. Murphy and J. Khalfa. London: Routledge.

Fowler, G. (1983), 'Past failure and the imperative for change', in O. Boyd-Barrett, T. Bush, J. Goodey, I. McNay and M. Preedy (eds), *Approaches to Post-School Management*. London: Harper and Row, pp. 119–32.

Francis, R. and Raftery, J. (2005), 'Blended learning landscapes', *Brookes eJournal of Learning and Teaching*, 1, (3), 1–5, [online] **bejlt.brookes.ac.uk**

Freire, P. (1970), *Pedagogy of the Oppressed*. London: Penguin.

Fuller, S. (2005), *The Intellectual: The Positive Power of Negative*. Cambridge: Icon Books.

Garrison, D. R. and Anderson, T. (2003), *E-learning in the 21st Century: A Framework for Research and Practice*. London: Routledge Falmer.

Gibbs, P., Angelides, P. and Michaelides, P. (2004), 'Preliminary thoughts on a praxis of higher education teaching', *Teaching in Higher Education*, 9, (2), 183–94.

Giddens, A. (1981), *A Contemporary Critique of Historical Materialism*. London: Macmillan.

Gilbert, A. D. (2000), 'The idea of a university beyond 2000', *Policy*, St Leonard's Centre for Independent Policy Studies in Australia and New Zealand, 16, (1), 31–6.

Giles, J. (2005), 'internet encyclopaedias go head to head', *Nature*, 438, 900–01, 15 December, [online] www.nature.com/nature/journal/v438/n7070/full/438900a.html

Goldstein, S. R. (1976), 'The asserted constitutional right of public school teachers to determine what they teach', *University of Pennsylvania Law Review*, 124, 1293–357.

Gombrich, R. (2000), 'British higher education in the last twenty years: the murder of a profession', lecture given to the Graduate Institute of Policy Studies, Tokyo, 7 January.

Gorard, S., Smith, E., May, H., Thomas, L., Admett, N. and Slack, K. (2006), Review of widening participation research: addressing the barriers to participation in higher education, report to HEFCE by the University of York, Higher Education Academy and Institute for Access Studies.

Gosling, D. (2001), 'Educational Development Units in the UK – what are they doing five years on', *International Journal for Academic Development*, 6, (1), 74–89.

Gosling, D. (2008), *Educational Development in the United Kingdom*. London: Heads of Educational Development Group. http://www.hedg.ac.uk/documents/HEDG_Report_final.pdf

Guile, D. (2006), 'What is distinctive about the knowledge economy? Implications for education', in H. Lauder, P. Brown, J. Dillabough and A. H. Halsey (eds), *Education, Globalization and Social Change*. Oxford: Oxford University Press, pp. 355–66.

Haggis, T. (2006), 'Pedagogies for diversity: retaining critical challenge amidst fears of "dumbing down" ', *Studies in Higher Education*, 31, (5), 521–35.

Hamp, I. (2007), Survival of the most adaptable. [online] www.iainhamp.com/goals/2007/09/22/survival-of-the-most-adaptable

Hanson, A. (1996), 'The search for a separate theory of adult learning: does anyone really need andragogy?', in R. Edwards, A. Hanson and P. Raggatt (eds), *Boundaries of Adult Learning*. London: Routledge, cited in H. Peters, H. Pokorny, and A. Sheibani, (1999), 'Fitting in: what place is accorded to the experiential learning mature students bring with them to higher education', paper presented to SCUTREA, 29th Annual Conference, University of Warwick, 6 July.

Hardt, M. and Negri, A. (2000), *Empire*. Cambridge: Harvard University Press.

Hartman, J., Moskal, P. and Dziuban, C. (2005), 'Preparing the academy of today for the learner of tomorrow', in D. G. Oblinger and J. L. Oblinger (eds), *Educating the Net Generation*. EDUCAUSE E-Book [online] www.educause.edu/IsItAgeorIT%3AFirstStepsTowardUnderstandingtheNetGeneration/6062

Harvey, D. (2000), *Spaces of Hope*. Edinburgh: Edinburgh University Press.

Harvey, L. (2003a), 'Scrap that student survey now', *Times Higher Education Supplement*, 12 December.

Harvey, L. (2003b), 'Student feedback', *Quality in Higher Education*, 9, (1), 3–20.

Haselgrove, S. (ed.) (1994), *The Student Experience*. Buckingham: SRHE and Open University Press.

Haskell, T. (1996), 'Justifying the right of academic freedom in the era of "power/knowledge" ', in L. Menand (ed.), *The Future of Academic Freedom*. Chicago: University of Chicago Press, pp. 43–92.

Hattie, J. and Marsh, H. W. (1996), 'The relationship between research and teaching: a meta-analysis', *Review of Educational Research*, 66, (4), 507–42.

HEA (Higher Education Academy) (2006), The UK Professional Standards Framework for teaching and supporting learning in higher education. [online] www.heacademy.ac.uk

HEA (Higher Education Academy) (2007), 'Comparative review of British, American and Australian national surveys of undergraduate students', [online] www.heacademy.ac.uk/resources/detail/ourwork/research/NSS_comparative_review_resource.

Healey, M., Jordan, F., Barney, P. and Short, C. (forthcoming) The Research-Teaching Nexus: Student Experiences of Research and Consultancy, *Innovations in Education and Teaching International*.

HEFCE (Higher Education Funding Council for England) (2001), Quality Assurance in Higher Education. [online] www.hefce.ac.uk/pubs/hefce/2001/01_45.htm

HEFCE (Higher Education Funding Council for England) (2002a), Partnerships for Progression: Circular 2002/49. Bristol: HEFCE.

HEFCE (Higher Education Funding Council for England) (2002b), Information on Quality and Standards in Higher Education: Final report of the task group (The Cooke Report). [online] www.hefce.ac.uk/pubs/hefce/2002/02_15.htm

HEFCE (Higher Education Funding Council for England) (2005), HEFCE strategy for elearning. [online] www.hefce.ac.uk/pubs/hefce/2005/05_12/

Helmholtz, H. von (1877), 'On academic freedom in German universities', reprinted in D. Cahan (1995) (ed.), *Science & Culture: Popular & Philosophical Lectures*. Chicago: University of Chicago Press, pp. 328–41.

Hendley, B. (2002), 'Hofstetter, the romantic idea of a university', *History of Education Quarterly*, 42, (3), 418–20.

HEPS (Higher Education Partnership for Sustainability) (2003), *Reporting for Sustainability: Guidance for Higher Education Institutions*. London: Forum for the Future.

Hernes, G. (1993), 'Images of institutions of higher education', *Higher Education Management*, 5, 265–71.

Hockings, C., Cooke, S. and Bowl, M. (2007), '"Academic engagement" within a widening participation context – a 3D analysis', *Teaching in Higher Education*, 12 (5/6), 721–33.

Hofstadter, R. and Metzger, W. (1955), *The Development of Academic Freedom in the United States*. New York: Columbia University Press.

Holland, S. (2003), *Council for College and University English News*, 17, Spring 2003. [online] www.ccue.ac.uk/fileadmin/documents/0208_CCUE_NEWS_MAR_APR.PDF

hooks, b. (1984), *Feminist Theory: From Margin to Centre*. Boston, MA: South End Press.

hooks, b. (1990), *Yearning: Race, Gender and Cultural Politics*. Toronto: Between the Lines Press.

Horwitz, P. (2005), 'Grutter's first amendment', *Boston College Law Review*, 46, (3), 461–590.

House of Commons (2005), UK e–University. House of Commons Education and Skills Committee, London: The Stationery Office.

Hubbard, P., Kitchin, R. and Valentine, G. (2007), *Key Thinkers on Space and Place*. Sage: London.

Humboldt, W. von (1810), 'On the spirit and organisational framework of intellectual institutions in Berlin', reprinted 1970, *Minerva*, 8, 242–67.

Hutchinson, D. (2004), *A Natural History of Place in Education*. New York: Teachers' College Press.

James, P. and Hopkinson, P. (2004), Sustainable Buildings Can Benefit Higher Education. A Briefing Paper, Higher Education Environmental Performance Improvement Project (HEEPI).

Jamieson, P. (2003), 'Designing more effective on-campus teaching and learning spaces: a role for academic developers', *International Journal for Academic Development*, 8, 119–33.

JISC (2003–2007), e-Learning Pedagogy Programme. [online] www.jisc.ac.uk/whatwedo/programmes/elearning_pedagogy.

JISC (2007), In their own words: exploring the learner's perspective on e-learning. [online] www.jiscinfonet.ac.uk/publications/in-their-own-words.

Kagawa, F. (2007), 'Dissonance in students' perception of sustainable development and sustainability: implications for curriculum change', *International Journal for Sustainability in Higher Education*, 8, (3), 317–38.

Kamradt, T. F. and Kamradt, E. J. (1999), 'Structured design for attitudinal instruction', in C. M. Reigeluth (ed.), *Instructional-Design Theories and Models*. London: Lawrence Erlbaum Associates, pp. 563–90.

Kerr, C. (1963), *The Uses of the University*. Cambridge: Harvard University Press.

Kerr, I. (1999), 'Newman's idea of an university', *Higher Education Policy Series*, 51, 11–29.

Keyishian v. Board of Regents of the State Univ. of New York (1967), 385 U.S. 589 603.

Knight, P. (2006), 'Quality enhancement and educational professional development', *Quality in Higher Education*, 12, (1), 29–40.

Knight, P. T. (2002), *Being a Teacher in Higher Education*. Buckingham: SRHE and Open University Press.

Knight, P. T. and Trowler, P. R. (2001), *Departmental Leadership in Higher Education*. Buckingham: Society for Research into Higher Education and Open University Press, cited in

S. Clegg, (2003), 'Problematising ourselves: Continuing Professional Development in higher education', *International Journal for Academic Development*, 8, (1/2), 37–50.

Knoll, J. H. and Siebert, H. (1967), *Humboldt: Politician and Educationalist*. Inter Nationes: Bad Godesberg.

Knowles, M. (1984), *The Adult Learner, a Neglected Species* (3rd edn). Houston: Gulf Publishing Company.

Kogan, M. (1975), *Educational Policy-Making: A Study of Interest Groups and Parliament*. London: George Allen and Unwin Ltd.

Kuhn, T. (1970), *The Structure of Scientific Revolutions*. Chicago: Chicago University Press.

Kwon, M. P. (2004), *One Place after Another: Site Specific Art and Location Identity*. Cambridge, MA: MIT Press.

Lamb, B. (2004), 'Wide open space: wikis, ready or not', *Educause Review*, 39, (5), 36–48, [online] www.educause.edu/pub/er/erm04/erm0452.asp

Lambert, C. (2008), 'Exploring new learning and teaching spaces', *Warwick Interactions Journal*, 11, (2), [online] www2.warwick.ac.uk/services/ldc/resource/interactions/current/ablambert

Lammers, W. and Murphy, J. (2002), 'A profile of teaching techniques used in the university classroom', *Active Learning in Higher Education*, 3, (1), 54–67.

Land, R. (2001), 'Agency, context and change in academic development', *Higher Education Quarterly*, 54, 207–16, cited in S. Clegg, (2003), 'Problematising ourselves: Continuing Professional Development in higher education', *International Journal for Academic Development*, 8, (1/2), 37–50.

Lauder, H., Brown, P., Dillabough, J. and Halsey, A. H. (2006), 'Introduction: the prospects for education: individualization, globalization and social change', in H. Lauder, P. Brown, J. Dillabough and A. H. Halsey (eds), *Education, Globalization and Social Change*. Oxford: Oxford University Press, pp. 1–70.

Laurillard, D. (2002), *Rethinking University Teaching: A Conversational Framework for the Effective Use of Learning Technologies* (2nd edn). London: RoutledgeFalmer.

Leathwood, C. (2001), 'The road to independence? Policy, pedagogy and the independent learner in higher education', in L. West, N. Miller, D. O'Reilly and R. Allen (eds), Proceedings of the 31st Annual Conference of SCUTREA, Pilgrim College, University of Nottingham: Nottingham, cited in B. Read, L. Archer and C. Leathwood (2003), 'Challenging cultures? Student conceptions of 'belonging' and 'isolation' at a post 1992 university', *Studies in Higher Education*, 28, (3), 261–77.

Lefebvre, H. (1991), *The Production of Space*. Oxford: Blackwell Publishing.

Leitch, S. (2006), *Prosperity for All in the Global Economy: World Class Skills: Final Report*. London: The Stationery Office.

Lenhart, A., Horrigan, J., Rainie, A., Boyce, A., Madden, M. and O'Grady, E. (2002), 'The ever-shifting internet population: a new look at internet access and the digital divide', *PEW Internet and American Life Project*, [online] www.pewinternet.org/report_display.asp?r=88

Lessig, L. (2004), *Free Culture*. New York: The Penguin Press.

Levidow, L. (2002), 'Marketizing higher education: neoliberal strategies and counter-strategies', *The Commoner*, no. 3, [online] www.commoner.org.uk/03levidow.pdf

Lisewski, B. (2004), 'Implementing a learning technology strategy: top-down strategy meets bottom-up culture', *ALT-J*, 12, (2), 175–88.

Lourdel, N., Gondran, N., Laforest, V., Debray, B. and Brodhag, C. (2007), 'Sustainable development cognitive map: a new method of evaluating student understanding', *International Journal of Sustainability in Higher Education*, 8, 2, 170–82.

Lytras, M. D., Naeve, A. and Pouloudi, A. (2005), 'A knowledge management roadmap for e-learning: the way ahead', *International Journal of Distance Education Technologies*, 3, (2), 68–76.

Machlup, F. (1955), 'Some misconceptions concerning academic freedom', *AAUP Bulletin*, 41, 753–84.

Malcolm, J. (2000), 'Joining, invading, reconstructing: participation for a change?', in J. Thompson (ed.), *Stretching the Academy*. Leicester: NIACE, pp. 12–22.

Martinez-Pons, M. (2003), *Continuum Guide to Successful Teaching in Higher Education*. London: Continuum Books.

Marton, F. and Säljö, R. (1997), 'Approaches to learning', in F. Marton, D. Hounsell and N. Entwistle (eds), *The Experience of Learning: Implications for Teaching and Studying in Higher Education* (2nd edn). Edinburgh: Scottish Academic Press, pp. 39–58.

Marx, K. (1993), *Grundrisse: Foundations of the Critique of Political Economy*. Harmondsworth: Penguin Classics.

Maskell, D. and Robinson, I. (2002), *The New Idea of a University*. London: Haven Books.

Maslow, A. (1943), 'A theory of human motivation', *Psychological Review*, 50, 370–96.

Massey, D. (2007), *For Space*. London: Sage.

McGivney, V. (1990), *Education's for Other People: Access to Education for Non-Participant Adults*. Leicester: NIACE.

McLeish, J. (1976), 'The lecture method', in N. Gage (ed.), *The Psychology of Teaching Methods*, 75th Yearbook of the National Society for the Study of Education. University of Chicago Press: Chicago, cited in J. Biggs (2003), *Teaching for Quality Learning at University: What the Student Does* (2nd edn). Maidenhead: SRHE and Open University Press.

McWilliam, E. (2002), 'Against professional development', *Educational Philosophy and Theory*, 34, (3), 289–99.

Menand, L. (1996), 'The limits of academic freedom', in L. Menand (ed.), *The Future of Academic Freedom*. Chicago: University of Chicago Press, pp. 1–20.

Metzger, W. (1987), 'Profession and constitution: two definitions of academic freedom in America', *Texas Law Review*, 66, 1265–322.

Miller, A. (2001), *Einstein and Picasso – Space, Time and the Beauty that Causes Havoc*. New York: Basic Books.

Morrison, D. (2008), 'Pathfinder network projects', [online] elearning.heacademy.ac.uk/weblogs/pathfinder/?p=159

Murphy, M. and Fleming, T. (1998), 'College knowledge: power, policy and the mature student experience at university', paper presented at: Research, Teaching and Learning: Making Connections in the Education of Adults, 28th Annual SCUTREA Conference, Exeter, July 1998.

Murray, P. E. and Murray, S. A. (2007), 'Promoting sustainability values within career-oriented degree programmes: a case study analysis', *International Journal of Sustainability in Higher Education*, 8, 3, 285–300.

National Student Survey [online] www.hefce.ac.uk/learning/nss

NCIHE (National Committee of Inquiry into Higher Education) (1997), *Higher Education in the Learning Society* (The Dearing Report). London: NCIHE.

Neary, M., Lambert, C. and Hanley, C. (2007), *Reinvention Centre Interim Report*. Coventry: Reinvention Centre for Undergraduate Research, Warwick University. [online] www2.warwick.ac.uk/fac/soc/sociology/research/cetl/about/evaluation/reinvention_evaluation_july_2007.pdf

Nelson, C. and Watt, S. (2003), *Office Hours: Activism and Change in the Academy*. Abingdon and New York: Routledge.

Nelson, J. (1990), 'The significance and rationale for academic freedom', in A. S. Ochoa (ed.), *Academic Freedom to Teach and to Learn: Every Teacher's Issue*, Washington, DC: National Educational Association, pp. 21–30.

Newman, J. H. (1853), *The Idea of a University*. New York: Doubleday.

Noble, D. F. (1998), 'Digital diploma mills: the automation of higher education', *First Monday*, [online] www.firstmonday.org/issues/issue3_1/noble/index.html, 3 (1).

Noyes, A. (2002), 'Learning landscapes', *British Educational Research Journal*, 30, (1), 27–41.

O'Keefe, D. J. (2002), *Persuasion: Theory & Research*. Thousand Oaks, CA: Sage.

O'Reilly, T. (2005), 'What is Web 2.0: design patterns and business models for the next generation of software', O'Reilly Media Inc., [online] www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html

Oakley, F. (1997), 'The elusive academic profession: complexity and change', *Daedalus*, 126, (4), 43–66.

Oblinger, G. and Oblinger, J. (2005), 'Is it age or IT: first steps toward understanding the net generation', in D. G. Oblinger and J. L. Oblinger, (eds), *Educating the Net Generation*. EDUCAUSE E-Book. [online] www.educause.edu/IsItAgeorIT%3AFirstStepsTowardUnderstandingtheNetGeneration/6058

Office of Public Sector Information (1992), *Further and Higher Education Act*. London: Office of Public Sector Information.

Onwueme, I. and Borsari, B. (2007), 'The sustainable asymptogram: a new philosophical framework for policy, outreach and education in sustainability', *International Journal of Sustainability in Higher Education*, 8, (1), 44–52.

Pascarella, E. T. and Terenzini, P. T. (2005), *How College Affects Students* Vol. 2: A Third Decade of Research. San Francisco: Jossey-Bass.

Pawson, R. and Tilley, N. (1997), *Realistic Evaluation*. London: Sage.

Peters, H., Pokorny, H. and Sheibani, A. (1999), 'Fitting in: what place is accorded to the experiential learning mature students bring with them to higher education', paper presented to SCUTREA, 29th Annual Conference, University of Warwick, 6 July.

Petty, R. E. and Cacioppo, J. T. (1981), *Attitudes and Persuasion: Classic and Contemporary Approaches*. Oxford: Westview Press.

Post, R. (2006), 'The structure of academic freedom', in B. Doumani (ed.), *Academic Freedom after September 11*. New York: Zone Books, pp. 61–106.

Pratt, J. (1997), *The Polytechnic Experiment: 1965–1992*. Buckingham: Society for Research into Higher Education and The Open University.

Prensky, M. (2001), 'Digital natives, digital immigrants', *On the Horizon*, 9, (5), NCB University Press, [online] tinyurl.com/ypgvf

Pritchard, R. M. O. (1998), 'Academic freedom and autonomy in the United Kingdom and Germany', *Minerva*, 36, 101–24.

Prosser, M. (2005), 'Why we shouldn't use student surveys of teaching as satisfaction ratings', *The Higher Education Academy*, [online] www.heacademy.ac.uk/research/Interpretingstudentsurveys.doc

Prosser, M. and Trigwell, K. (1999), *Understanding Learning and Teaching. The Experience in Higher Education*. Buckingham: SRHE and Open University Press.

Rabban, D. (1998), 'Can academic freedom survive postmodernism?' *California Law Review*, 86, (6), 1377–89.

Ramsden, P. (1998), *Learning to Lead in Higher Education*. London: Routledge, cited in K. Trigwell and S. Shale (2004), 'Student learning and the scholarship of university teaching', *Studies in Higher Education*, 29, (4), 524–5.

Rancière, J. (1991), *The Ignorant Schoolmaster: Five Lessons in Intellectual Emancipation*. California: Stanford University Press.

Read, B., Archer, L. and Leathwood, C. (2003), 'Challenging cultures? Student conceptions of "belonging" and "isolation" at a post-1992 university', *Studies in Higher Education*, 28, (3), 261–77.

Reay, D., David, M. and Ball, S. (2005), *Degrees of Choice: Social Class, Race and Gender in Higher Education*. Stoke-on-Trent: Trentham.

Reay, D., Crozier, G., Clayton, J., Colliander, L. and Grinstead, J. (2007), ' "Fitting in" or "standing out": working class students in higher education', paper presented to BERA Conference, Institute of Education, September 2007.

Richardson, J. (2005), National Student Survey: Interim Assessment of the 2005 Questionnaire. HEFCE report, [online] www.hefce.ac.uk/pubs/rdreports/2005/rd20_05/

Roberts, C. and Roberts J. (eds) (2007), *Greener by Degrees: Exploring Sustainability Through Higher Education Curricula*. Gloucester: University of Gloucestershire.

Rochford, F. (2003), 'Academic freedom as insubordination: the legalisation of the academy', *Education and the Law*, 15, 249–62.

Rogers, C. (1983), *Freedom to Learn for the 80s* (2nd edn). Columbus, OH: Merrill.

Rorty, R. (1996), 'Does academic freedom have philosophical presuppositions?' in L. Menand (ed.), *The Future of Academic Freedom*. Chicago: University of Chicago Press, pp. 21–42.

Rose, G. (1993), *Feminism and Geography*. Minnesota: University of Minnesota Press.

Rowe, D. (2002), 'Environmental literacy and sustainability as core requirements: success stories and models', in W. Leal Filho (ed.) *Teaching Sustainability at Universities*. Peter Lang: New York.

Rucker, D. D. and Petty, R. E. (2004), 'When resistance is futile: consequences of failed counterarguing for attitude certainty', *Journal of Personality and Social Psychology*, 86, (2), 219–35.

Rudd, T., Colligan, R. and Naik, R. (2006), *Learner Voice: a Handbook from Futurelab*. Bristol: Futurelab. [online] www.futurelab.org.uk/resources/documents/handbooks/learner_voice pdf

Russell, R., Criddle, S. and Ormes, S. (1998), Information Landscapes for a Learning Society UKOLN conference report. [online] www.ariadne.ac.uk/issue16/landscapes/intro.html

Ryan, S. (2001), 'Succeeding despite the odds: a narrative of hurdles obstructing lifelong learning pathways', paper presented at the 31st Annual SCUTREA Conference, University of East London, 3–5 July.

Salmon, G. (2000), *E-moderating: The Key to Teaching and Learning Online* (2nd edn). London: Taylor and Francis.

Salmon, G. (2005), 'Flapping not flying', *ALT-J*, 13, (3), 201–18.

Sanders, C. (2004), 'Casual culture props up academe', *Times Higher Education Supplement*, 1 October. [online] www.timeshighereducation.co.uk/story.asp?storyCode=191546&sectioncode=26

Sanders, C. (2006), 'Students, think twice before you tick us off', *Times Higher Education Supplement*, 10 February.

Sarles, H. (2001), 'A vision: the idea of a university in the present age', *Organization*, 8, (2), 403–15.

Sastry, T. and Bekhradnia, B. (2007), *The Academic Experience of Students in English Universities, Executive Summary*. Oxford: Higher Education Policy Institute. [online] www.hepi.ac.uk/.

Schön, D. (1995), *The Reflective Practitioner: How Professionals Think in Action*. Aldershot: Avebury.

Schuller, T. and Field, J. (2002), 'Social capital, human capital and the learning society', in R. Edwards, N. Miller, N. Small and A. Tait (eds), *Supporting Lifelong Learning* Volume 3, Making Policy Work. London: Routledge, pp. 76–87.

Scott, P. (1995), *The Meanings of Mass Higher Education*. Buckingham: SRHE and Open University Press.

Scott, P. (2005), 'Divergence or convergence? The links between university teaching and research in mass higher education', in R. Barnett (ed.), *Reshaping the University: New Relationships between Research, Scholarship and Teaching*. Maidenhead: McGraw-Hill, pp. 53–66.

Scribner, S. (1985), 'Vygotsky's uses of history', in J. Wertsch (ed.), *Culture, Communication and Cognition: Vygotskian Perspectives*. Cambridge: Cambridge University Press, pp. 119–45.

Scruton, R. (2001), 'The idea of a university', *Salisbury Review*, 20, (1), 4–8.

Scull, A. (2007), 'The fictions of Foucault's scholarship', *Times Literary Supplement*, 5425, 3.

Searle, J. R. (1993), 'Rationality and realism, what is at stake?', *Daedalus*, 122, (4), 55–83.

Seel, N. M. and Dijkstra, S. (eds) (2004), *Curriculum, Plans, and Processes in Instructional Design: International Perspectives*. London: Lawrence Erlbaum Associates.

Serafin, E. (2006), 'Learning landscapes: the use of landscape as a metaphor for the design and implementation of learning systems', paper presented at Association of Learning Technology Conference, Edinburgh, 5–7 September. [online] **www.alt.ac.uk/altc2006**

SFC (Scottish Funding Council) (2006), *Spaces for Learning: A Review of Learning Spaces in Further and Higher Education*. Edinburgh: Scottish Funding Council.

Sharpe, R. (2004), 'How do professionals learn and develop? Implications for staff and educational developers', in D. Baume and P. Kahn (eds), *Enhancing Staff and Educational Development*. London: RoutledgeFalmer, pp. 133–53.

Sharpe, R. and Benfield, G. (2005), 'The student experience of elearning in higher education', *Brookes eJournal of Learning and Teaching*, **1**, (3), [online] www.brookes.ac.uk/publications/bejlt/volume1issue3/academic/sharpe_benfield.html.

Shephard, K. (2008), 'Higher education for sustainability: seeking affective learning outcomes', *International Journal of Sustainability in Higher Education*, 9, (1), 87–98.

Shiell, T. C. (2006), 'Three conceptions of academic freedom', in E. Gerstmann and M. J. Streb (eds), *Academic Freedom at the Dawn of a New Century*, Stanford: Stanford University Press, pp. 17–40.

Shils, E. (1995), 'Academic freedom and permanent tenure', *Minerva*, 33, 5–17.

Sipos, Y., Battisti, B. and Grimm, K. (2008), 'Achieving transformative sustainability learning: engaging heads, hands and hearts', *International Journal of Sustainability in Higher Education*, 9, (1), 68–86.

Sjoberg, G. (1998), 'Democracy, science and institutionalized dissent: toward a social justification for academic tenure', *Sociological Perspectives*, 41, 697–721.

Skelton, A. (2005), *Understanding Teaching Excellence in Higher Education: Towards a Critical Approach*. London: Routledge.

Slaughter, S. and Leslie, L. (1997), *Academic Capitalism: Politics, Policies and the Entrepreneurial University*. Baltimore, MD: Johns Hopkins University Press.

Smith, D. (1999), 'The changing idea of a university', *Higher Education Policy Series*, 51, 148–74.

Smith, P. and Rust, C. (2007), 'Students' expectations of a research-based curriculum: results from an online questionnaire survey of first year undergraduates at Oxford Brookes University', *Brookes eJournal of Learning and Teaching*, 2, (2). [online] bejlt.brookes.ac.uk

Snelbecker, G. E. (1999), 'Current progress, historical perspective, and some task for the future of instructional theory', in C. M. Reigeluth (ed.) *Instructional-Design Theories and Models*. London: Lawrence Erlbaum Associates.

St. Laurent, A. M. (2004), *Understanding Open Source and Free Software Licensing*. Sebastopol, CA: O'Reilly Media.

Starik, M., Schaeffer, T. N., Berman, P. and Hazelwood, A. (2002), 'Initial environmental project characterisations of four US universities', *International Journal of Sustainability in Higher Education*, 3, (4), 335–46.

Stuart, M., (2000), 'Beyond rhetoric: reclaiming a radical agenda for active participation in higher education', in J. Thompson (ed.), *Stretching the Academy*. Leicester: NIACE, pp. 23–35.

Sullivan, P. (2007), 'The National Student Survey. Just another hurdle to justify our crust?', *Educational Developments*, 8, (1) 19–21.

Surridge, P. (2006), The National Student Survey 2005: Response and survey methodology. HEFCE Report.

Surridge, P. (2007), The National Student Survey 2006: Findings. HEFCE Report.

Tapper, E. P. and Salter, B. G. (1998), 'The Dearing Report and the maintenance of academic standards: towards a new academic corporatism', *Higher Education Quarterly*, 52, (1), 22–34.

Taylor, R. (2000), 'Concepts of self-directed learning in higher education: reestablishing the democratic tradition', in J. Thompson (ed.), *Stretching the Academy*. Leicester: NIACE, pp. 68–79.

Temple, P. (2007), *Learning Spaces for the 21st Century: A Review of the Literature*. Higher Education Academy.

Terenzini, P. (2005), 'What is learned at university: the U.S. experience', paper presented to the symposium of The Social and Organizational Mediation of University Learning, Cambridge University, 22 September.

Tett, L. (2000), ' "I'm working class and proud of it" – gendered experiences of nontraditional participants in higher education', *Gender and Education*, 12, (2), 183–94.

Thomas, L. (2001), *Widening Participation in Post-compulsory Education*. London: Continuum Books.

Thompson, J. (2000), 'Introduction', in J. Thompson (ed.), *Stretching the Academy*. Leicester: NIACE, pp. 1–11.

Thorens, J. (2006), 'Liberties, freedom and autonomy: a few reflections on academia's estate', *Higher Education Policy*, 19, 87–110.

Thrift, N. (2008), *Non-Representational Theory: Space, Politics, Affect*. London and New York: Routledge.

Tierney, W. (1993), 'Academic Freedom and the Parameters of Knowledge', *Harvard Educational Review*, 63, (2), 143–60.

Tight, M. (2003), *Researching Higher Education*. Maidenhead: Open University Press.

Tosh, D. and Werdmuller, B. (2004), 'Creation of a learning landscape: weblogging and social networking in the context of e-portfolios', [online] eduspaces.net/bwerdmuller/files/61/179/Learning_landscapes.pdf

Traver, A. G. (1997), 'Rewriting history? The Parisian secular masters' apologia of 1254', in P. Denley, *History of Universities* Volume XV. Oxford: Oxford University Press, pp. 9–45.

Trigwell, K. and Shale, S. (2004), 'Student learning and the scholarship of university teaching', *Studies in Higher Education*, 29, (4), 523–36.

Trow, M. and Fulton, O. (1974), 'Research Activity in American Higher Education', *Sociology of Education*, 47, (1), 29–73.

TUC-NUS (2006), All work, low pay: the growth in UK student employment. [online] www.tuc.org.uk/extras/allworklowpay.pdf

Turner, J. (1988), 'The Price of Freedom', in M. Tight (ed.), *Academic Freedom and Responsibility*. Buckingham: SRHE/Open University Press, pp. 104–13.

UNESCO (1997), 'Recommendation concerning the status of higher education teaching personnel', Records of the General Conference, Twenty-ninth Session, 21 October–12 November 1997, Volume 1 Resolutions. Paris: UNESCO, pp. 26–36.

UNESCO (2000), 'Wilhelm Von Humboldt'. *Prospects: The Quarterly Review of Comparative Education*, 23, (3/4), 613–23.

UNESCO (2005), *United Nations Decade of Education for Sustainable Development 2005–2014: Draft International Implementation Scheme*. Paris: UNESCO.

Virno, P. (1996), 'Notes on the "General Intellect" ', in S. Makdisi, C. Casarino and R. E. Karl (eds), *Marxism Beyond Marxism*. London: Routledge, pp. 265–72.

Virno, P. and Hardt, M. (1996), *Radical Thought in Italy: A Potential Politics*. Minneapolis: University of Minnesota.

Vygotsky, L. (1962), *Thought and Language*. Cambridge, MA: The MIT Press.

Vygotsky, L. (1978), *Mind in Society: The Development of Higher Psychological Processes*. Cambridge, MA: Harvard University Press.

Warburton, K. (2003), 'Deep learning and education for sustainability', *International Journal of Sustainability in Higher Education*, 4, (1), 44–56.

Warmington, P. (2007), 'Popular press, visible value: how debates on exams and student debt have unmasked the commodity relations of the "learning age" ', in A. Green, G. Rikowski and H. Raduntz (eds), *Renewing Dialogues in Marxism and Education: Openings*. Basingstoke: Palgrave Macmillan, pp. 215–28.

Warner, D. and Palfreyman, D. (2001), *The State of Higher Education*. Buckingham: Open University Press.

Warschauer, M., Knobel, M. and Stone, L. (2004), 'Technology and equity in schooling: deconstructing the digital divide', *Educational Policy*, 18, (4), 562–88.

Watson, D. and Taylor, R. (1998), *Lifelong Learning and the University. A Post-Dearing Agenda*. London: Falmer Press.

WCED (World Commission on Environment and Development) (1987), *Our Common Future*. Oxford: Oxford University Press.

West, E. (1963), 'A counterblast to Robbins', STATIST, 1–5. [online] www.ncl.ac.uk/egwest/pdfs/counterblast.pdf

Westera, W. (2004), 'On strategies of educational innovation: between substitution and transformation', *Higher Education*, 47, 501–17.

Whitehead, A. N. and Russell, B. (1973), *Principia Mathematica*. Cambridge: Cambridge University Press.

Wieman, C. (2004), 'Professors who are scholars: bringing the act of discovery to the classroom', paper presented at The Reinvention Center 2nd National Conference, Washington DC, November 2004, [online] www.reinventioncenter.miami.edu/conference_04/wieman/presentation.htm

Wolf, A. (2002), *Does Education Matter? Myths about Education and Economic Growth*. London and New York: Penguin Books.

WPCSUP (Working Party of the Committee of Scottish University Principals) (1992), *Teaching and Learning in an Expanding Higher Education System* (The MacFarlane Report). Edinburgh: SCFC.

Wright, S. (2004), 'Markets, corporations, consumers? New landscapes of higher education', *Learning and Teaching in the Social Sciences*, 2, 71–93.

Yudof, M. G. (1987), 'Three faces of academic freedom', *Loyola Law Review*, 32, 831–58.

Zamorski, B. (2002), 'Research-led teaching and learning in higher education: a case study', *Teaching in Higher Education*, 7, (4), 411–27.

Zuber-Skerritt, O. (1992), *Professional Development in Higher Education*. London: Kogan Page.

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Questioning Technology in the Development of a Resilient Higher Education

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ABSTRACT This article considers the impact that peak oil and climate change may have on the future of higher education. In particular, it questions the role of technology in supporting the provision of a higher education which is resilient to a scenario both of energy depletion and the need to adapt to the effects of global warming. One emerging area of interest from this future scenario might be the role of technology in addressing more complex learning futures, and more especially in facilitating individual and social resilience, or the ability to manage and overcome disruption. However, the extent to which higher education practitioners can utilise technology to this end is framed by their approaches to the curriculum, and the sociocultural practices within which they are located. The authors discuss how open education might enable learners to engage with uncertainty through social action within a form of higher education that is more resilient to economic, environmental and energy-related disruptions. It asks whether more open higher education can be (re)claimed by users and communities within specific contexts and curricula, in order to engage with an increasingly uncertain world.

Introduction

The interconnections between education, technology, energy use and carbon emissions have received relatively little attention to date (Joint Information Systems Committee, 2011). In fact, green technology and technological efficiencies are often seen as a fix; a way in which the environmental impact of our high-tech, digitised activities can be offset, in order to enable economic business as usual to continue (New Economics Foundation, 2009). However, there is now an emerging critique of the issue of sustainability tied to the viability of capitalist work within the context of reduced liquid fuels availability, and a lack of control over carbon emissions (Pielke, 2010; Greer, 2011). Consideration of these implications is a reminder that higher education (HE) does not operate in a vacuum (Thrift, 2010).

This, in turn, has implications for education and the implementation of educational technology within capitalism. By March 2011, the price of crude oil stabilised above US$100 per barrel after reaching a short-term peak of US$118 per barrel (US Energy Information Administration, 2011). Practitioners in HE might ask why this matters to them and their work, given that the price of oil has fluctuated, historically tied to a range of immediate geopolitical and economic factors (Kilian, 2009). Why is this time any different? This article relates current analyses of global disruptions to the role of technology in HE, in order to describe a possible future scenario for higher learning. The first part of this article sets out to analyse this question by drawing on recent research which, it is argued, should compel those working in HE to think much more seriously about a future of research, teaching and learning that is substantially impacted by the

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socio-economic effects of environmental volatility. The article then reflects on a recent editorial published in the *British Medical Journal* (Raffle, 2010), where health professionals in the United Kingdom undertook a scenario-planning exercise around the likely impacts of peak oil on the provision of public health services, in order to reflect on the place of educational technology in HE. Finally, the article suggests ways in which the uses of technology in HE might facilitate a new form of resilient education based on open educational practices.

Thinking the Unthinkable: peak oil and climate change

Peak Oil and Energy Costs

Peak oil is the point at which the maximum rate of oil production is reached. Following this peak, oil production declines due to exponentially falling supply. Peak oil does not refer to the point at which there is no more oil left in the earth, but rather acknowledges that the production of oil and the net energy it provides measurably decreases over a number of years and it becomes increasingly uneconomical to produce and consume. Hubbert's (1956) peak oil theory has been empirically observed on a national level in 54 of the 65 largest oil-producing countries (Aleklett, 2005). For example, the United Kingdom experienced peak oil in 2000 (Zittel, 2001) and the USA experienced the peak of production from its national oil fields in 1970 (Gail the Actuary, 2009). Worldwide, the *discovery* of oil measured by volume peaked in 1964 (Gail the Actuary, 2009) and the rate of current oil discovery, and therefore global oil reserves, is inadequate to meet projected demand (Gail the Actuary, 2010; Owen et al, 2010). Since May 2005, the *production* of all liquid fuels from current fields has reached a plateau, with very little additional volume being produced. At the same time, the price of oil has doubled (Ace, 2009). Despite these observations, the theory of global peak oil was contested until the International Energy Agency (IEA, 2010a) clearly stated that the production of 'conventional oil' peaked in 2006 and, since then, any additional demand for oil has been met by so-called 'unconventional oil' (i.e. tar sands, deep water reserves and biofuels). Unconventional sources of oil are much more energy-intensive to exploit and therefore produce less net energy than conventional crude oil, and their production is likewise more expensive. Therefore, as conventional sources decline at more than 4% per year, the replacement non-conventional oil pushes prices upwards if demand is to be met.

The significance of global oil production for the provision of HE is socio-economic, in that global gross domestic product (GDP) closely correlates to global oil production. In other words, the production of wealth depends on the production of energy, and the world consumes more energy from oil than any other single source (International Energy Agency, 2010a, 2011). Although the majority of oil worldwide is used to make petroleum for transportation and, in some countries, space heating and electricity, it is essential to many other sectors of the world economy, including the production of food (Aleklett, 2010), plastics and pharmaceuticals. In this, HE is implicated through its strategies for growth, like internationalisation and the constant renewal of technologies. In the United Kingdom, oil accounts for 39% of the total primary energy demand and petroleum accounts for 45% of the total energy consumption. Although oil accounts for just over 1% of the United Kingdom's production of electricity (Department of Energy and Climate Change, 2010), to a greater extent it underwrites the production and distribution of other fuels because of its versatility and the overwhelming reliance on oil for transportation. It is therefore not surprising that the price of other forms of energy, such as electricity and gas, is affected by the price of oil (Oil Depletion Analysis Centre & Post Carbon Institute, 2010), with huge implications for universities as HE budgets are cut (Shepherd, 2010).

The importance of oil to economic growth will become an increasing concern to universities, which are themselves seen as engines of growth (Corbett Broad, 2010; Mohrman, 2011; Willetts, 2011). Hirsch (2008) has calculated that a decline in the global production of liquid fuels (i.e. unconventional and conventional oil) would lead to approximately a 1:1 ratio in the decline of global GDP. In the same article, the post-peak decline in oil production is calculated to be between 2% and 5% per year, suggesting a similar decline in GDP. By comparison, the decline in GDP during the global recession from 2008 to 2009 was 5% (World Bank, 2011). In the United Kingdom, the Industry Taskforce on Peak Oil and Energy Security (ITPOES, 2010) has likened the effect of an imminent 'oil crunch', due mid-decade, to the current credit crunch. Their report also shows the

'highly suggestive' correlation between oil price spikes and US recessions, stating that every US recession since 1960 has been preceded by rapid oil price rises, and that when the price of oil exceeds 4% of US GNP, a recession occurs shortly afterwards. In March 2011, this equated to an oil price of around US$80 per barrel, and therefore April 2011's price for dated Brent spot crude oil of US$118 per barrel is a threat to economic growth in oil-importing countries. Moreover, within capitalism, a threat to economic growth is a threat to social stability, as is noted whenever there is a recession or conflict (Colgan, 2011), with clear implications for the role of HE (Thrift, 2010).

These issues were amplified by the US Department of Energy's 'Hirsch report', which stated:

> The peaking of world oil production presents the U.S. and the world with an unprecedented risk management problem. As peaking is approached, liquid fuel prices and price volatility will increase dramatically, and, without timely mitigation, the economic, social, and political costs will be unprecedented. (Hirsch et al, 2005, p. 4)

The difficulty of moving away from the use of oil is highlighted by the Hirsch report, which states that 'a minimum of a decade of intense, expensive effort' is required to migrate from our current use (Hirsch et al, 2005, p. 5). Businesses have strategically targeted waste in energy usage of technology, and attempted to profit from its measurement and monitoring as part of a strategy to roll out smart technologies (IBM, 2010), which themselves are highly contentious (Levitt & Glendinning, 2011). Relatively little has been done to address this anticipated problem within HE due to its focus on business as usual (Higher Education Funding Council for England, 2010). Within the current model, business as usual extends the global demand for oil by at least 15% over the next 25 years (International Energy Agency, 2010b).

The Rebound Effect, Carbon Emissions and Technological Efficiency

One of the measures designed to improve the security of energy supplies in the face of declining liquid fuel availability is to improve energy efficiency through technology. This effectively allows actors to do the same (or more) work using less energy than before. This continual drive for energy efficiency is also closely related to societal carbon reduction targets, again promised through technology. The European Union directive on climate change sees efficiencies as 'one of the key ways in which CO2 emission savings can be realised' (European Commission, 2008, p. 8).

However, there is a problem when claiming absolute targets for energy efficiency, which is known as the 'rebound effect' (Sorrell, 2007; Breakthrough Institute, 2011). Thus, while institutions like universities might save energy through efficiencies like powering down personal computers (PCs) in laboratories, they spend part of those savings on other activities that use up energy. For instance, university procurement procedures enable the replacement of PCs with more energy-efficient models, only to embed those savings in the production and use of more technologies, which themselves increase the demand for energy and produce emissions. The Open University in the United Kingdom studied energy-efficiency measures, comparing the energy consumption of distance learning courses to campus-based courses, and concluded that the former did not result in an overall reduction of energy usage, due to rebound effects. Although less energy was used on campus, the use of energy was transferred to people's homes and purchasing habits. In practice, it was argued that: 'Service system efficiency in itself is not a panacea for sustainable consumption as the gains are easily offset by rebound effects together with an increase in the number and variety of products consumed' (Herring & Roy, 2002, p. 538).

Allied to an analysis of rebound effects is the discourse around economic growth and technological progress. The conclusions of the UK Energy Research Centre report on energy consumption, emissions and promoting technological efficiencies have implications for HE practitioners:

> In developed countries, energy use as conventionally measured has grown more slowly than the economy as a whole. From this, it is generally concluded that technical change has improved the efficiency with which energy is used and thereby helped to 'decouple' energy consumption from economic growth. However, once different energy sources are weighted by their relative 'quality' or economic productivity, the coupling between energy consumption and economic growth appears far stronger. Taken together, the evidence reviewed in this report suggests that:

> a) the scope for substituting other inputs for energy is relatively limited; b) much technical change has historically increased energy intensity; c) energy may play a more important role in economic growth than is conventionally assumed; and d) economy-wide rebound effects may be larger than is conventionally assumed. (Sorrell, 2007, p. vii)

This has led Jackson (2009, p. 8) to argue that while there is clear evidence of a relative decoupling in the use of fossil fuel energy and economic growth, any 'improvements in energy (and carbon) intensity ... were offset by increases in the scale of economic activity over the same period'.

The difficulty of decoupling energy consumption and economic growth is understood in terms of the impact of human activities (I), which is determined by the overall population (P), the level of affluence (A) and the efficiency of technology (T), given as I = P.A.T. In spite of hopes that technological efficiency will drive down the impact of consumption, it is only an efficiency factor in the equation, whilst population and affluence are scaling factors. As a result, Jackson states that:

> the overall result depends on improving technological efficiency fast enough to outrun the scale effects of affluence and population ... we now appear to be in a self-reinforcing positive feedback between affluence and technology, potentially – and I emphasise potentially – geared in the direction of rising impact. (Jackson, 2007, p. 6)

This view of the conflicted nature of energy use, carbon emissions and economic growth led Pielke (2009) to note that technological efficiency, although vitally important, does not, as we might expect, lead to an overall reduction in emissions or energy consumption. Pielke investigated the impact of the United Kingdom's economic activities in the context of its 2008 Climate Change Act, and the target for an 80% reduction in carbon emissions by 2050, by projecting from historical data for population, decarbonisation and growth in GDP. At best, technological change, including changes in education towards services and away from energy-intensive production activities, only balanced emissions from the overall growth of the economy. The logic of these relationships means that 'carbon accumulating in the atmosphere can be reduced only by reducing (a) population, (b) per capita GDP, or (c) carbon intensity of the economy' (Pielke, 2009, p. 2). Understandably, academics working in this space see technological innovation as the only realistic policy choice (Royal Academy of Engineering, 2010), although it has also led to emissions and energy use being outsourced to industrialising countries. As a result, any balance is lost in favour of rising energy use and emissions (Helm, 2007).

This projected outcome has major implications for the socio-economic roles of universities, especially given that any transition from established to new technologies is normally in the region of 30-40 years (Royal Academy of Engineering, 2010). Both the transition to the use of new technologies and the building of any new infrastructure are major challenges. This task is not just technological or economic, but is also political and social. It is perhaps in this space that HE has a major role to play through its networks and communities, as the infrastructural and cultural changes demanded require major systemic changes to millions of individual actors and assets. Major training and development programmes will be required, and engagement will require disciplinary and technological agility because 'the changes to the UK energy system required to meet any of the scenarios will be considerable and disruptive' (Royal Academy of Engineering, 2010, p. 14). These requirements stand against the current motive forces within and across HE for economic growth and business as usual: namely, the implementation of more technology; outsourcing linked to green information and communication technology agendas; further internationalisation and extension of competitive markets; and distance and work-based learning. In light of this, the impact of HE on carbon emissions and energy use, in the context of economic growth, needs critique.

What seems clear, then, from expert analyses is that technology as a solution is being overstated, in order to avoid the greater social, environmental and economic effects of an aspirational and growing population. The hopes for efficient technology emerge as an apparently politically neutral solution (Jackson, 2007), and yet the history of the production and use of technology implies that this is hugely problematic within capitalist societies that pursue economic growth through strategies for commodification, profit maximisation and accumulation (Meiksins-Wood, 1997; Noble, 1998; Harvey, 2010; Greer, 2011). Jackson succinctly nails the problem faced by society in general, and HE in particular:

> In short, society is faced with a profound dilemma. To resist growth is to risk economic and social collapse. To pursue it is to endanger the ecosystems on which we depend for long-term survival. For the most part, this dilemma goes unrecognised in mainstream policy or in public debate. When reality begins to impinge on the collective consciousness, the best suggestion to hand is that we can somehow 'decouple' growth from its material impacts. Never mind that decoupling isn't happening. Never mind that no such economy has ever existed. Never mind that all our institutions and incentive structures continually point in the opposite direction. The dilemma, once recognised, looms so dangerously over our future that we are desperate to believe in miracles. Technology will save us. Capitalism is good at technology. So let's just keep the show on the road and hope for the best. (Jackson, 2009, p. 102)

In the face of these issues, practitioners concerned about progressive and technologically enhanced forms of HE might usefully reflect on the form and content of our institutions.

Developing Resilience: comparing the education and health sectors

In a *British Medical Journal* editorial, Raffle offered a brief assessment of peak oil and its likely effects on the form and nature of health and health care, noting that:

> oil is a primary raw material for many drugs, equipment, and supplies; that transport for patients, staff, deliveries, and services is heavily oil dependent; that currently suppliers are not required to provide business continuity plans around fuel supply shortages; and that rising oil costs would seriously affect health service budgets. (Raffle, 2010)

The editorial acknowledges a range of challenges tied to oil dependency and lists the outcomes from a series of workshops where peak oil and health care was discussed. Participants described the positive features of 'a society that has successfully reduced its reliance on fossil fuels', including the following:

- All essential drugs are now produced without petrochemicals, some locally.
- All National Health Service (NHS) estate is a net energy generator.
- Every NHS facility is accessible on foot, by bicycle and by public transport.
- Digital infrastructure is used for high-priority communication, including that between patients and health services.
- Landline telephone and radio are important.
- The most essential and best-value aspects of modern health care have been preserved; those of only marginal benefit have been abandoned.
- Towns and cities have high-density housing – more lodgers, more boarding houses and more shared housing.
- All land and space that can be is used for food production. Many more people are employed in food growing and preparation, and people's involvement with food is far greater.
- Everyone does some form of volunteering work for their local community.
- Legal structures are different; limited liability is gone; drivers of growth are gone; and the ability of an individual to pursue expensive legal challenges is gone.
- The norm is for systems designed for the prosperity of the community and the preservation of non-renewable resources.
- Health care is rationed and some conditions cannot be treated.

Whilst some features may appear idealistic, these workshops focused on the attributes of a successful transition away from oil towards a radically different world where carbon emissions must be reduced by 80% by 2050. This health-care scenario does not necessarily describe a futuristic, high-tech world, but rather one of low energy use with appropriate technology that is powered in large part by the microgeneration of electricity. People live closer together, walk more and grow their own food. Digital infrastructure is reserved for critical uses and people take more responsibility for themselves, rather than outsourcing the management of their needs. Notably, this scenario points towards a zero-growth economy, where resources and services are rationed (New Economics Foundation, 2009).

Given that universities in the United Kingdom currently contribute 2.3% of GDP (Department for Business, Innovation and Skills, 2009), how a university might operate under a

stable but zero-growth economy is important, and is connected to issues of prosperity. Jackson (2009, p. 43) has argued both that basic entitlements like education need not intrinsically be coupled with growth and that growth itself is unsustainable: 'Some countries achieve remarkable levels of flourishing with only a fraction of the income available to richer nations.' This is central to a critique of possible future scenarios because growth based on resource consumption and rising environmental despoliation is unsustainable and, under present conditions, de-growth is unstable as it diminishes consumer demand, leading to increasing unemployment, falling competitiveness and a spiral of recession. This dilemma 'cannot be avoided and has to be taken seriously. The failure to do so is the single biggest threat to sustainability that we face' (Jackson, 2009, p. 8).

Education practitioners might usefully reflect on the role of the HE sector and the university in developing and delivering pedagogies and curricula that encourage radical changes in a future where there may be less abundance and freedom of choice than previously experienced, and a recalibrated view of progress and growth. This includes making decisions about the scale and scope of technology implementation and pervasiveness. Given capitalism's current provision of high-tech, industrialised education, the actions that universities might take to remain relevant are critical. This does not imply that participation in HE will automatically diminish or that HE will become more niche or privileged, or that technology use will be reduced, especially as there is evidence that on-site HE energy consumption is not tightly coupled with student numbers (Ward et al, 2008). In fact, there may be a role for universities in acting as technological hubs for communities and networks. A useful case study here is Cuba, which has roughly the same level of educational participation as the United Kingdom, yet with a GDP per capita that is just a quarter of that of the United Kingdom (United Nations, 2010). Cuba's energy use per capita is also just a quarter of the United Kingdom's consumption (World Bank, 2010), suggesting that while GDP and energy consumption are closely coupled, GDP and educational participation need not be. These issues are important in imagining possible futures and roles for technology in HE, and in the contribution of the university to reimagining resilient social relationships.

Resilience is central to a reimagining of possible futures. It denotes the ability of *individuals* and *communities* to learn and adapt, to mitigate risks, to prepare solutions to problems, to respond to risks that are realised, and to recover from dislocations (Hopkins, 2009). For Hopkins (2009), resilience is 'the capacity of a system to absorb disturbance and reorganise while undergoing change, so as to retain essentially the same function, structure, identity and feedbacks'. This focuses upon defining problems and framing solutions contextually around our abilities to change and adapt rather than control and manage, in ways that are shared, reciprocal and self-reliant. Resilience is fundamental to sustainability, in enabling individuals and communities to manage crises and disruptions, and to find alternatives.

Edwards (2009) has argued that formal and informal education play a major role in engaging people with resilient responses to disruptions. He also highlighted the need for society to become increasingly focused on resilience, in order to adapt to disruptions like the impact of energy shortages. In this, universities need to consider the use and benefits of technology, both in terms of business continuity and as tools for teaching about resilience. For example, is the promotion of cloud computing and ubiquitous Internet access increasing our resilience or not? Does a focus on locative, pervasive mobile computing, and any time, anywhere access to online information and communication, enhance community resilience? How might an engagement with the open web and hacker communities, rather than corporate information technology (IT) systems, enhance shared problem solving? What is the role of digital literacy and research into digital divides in developing resilient responses to crises, at the levels of the individual, the network, the community and the institution?

The three core characteristics of resilience (Hopkins, 2009) help to extend an analysis of the role of educational technology within this context. Firstly, resilience is communal and comes through *diversity* within networks or associations, and encompasses a broad base of livelihoods, skills and capabilities, resource use, and access to human and energy systems. These skills are shared and transdisciplinary. Secondly, *modularity* within communities or networks underpins increased self-reliance. Thus, the ability of communities to tap into 'surge protectors', such as diverse areas of expertise or resource supply, can help them to achieve their aims. These communities are networked and decentralised. Thirdly, tightness of *feedback loops*, so that people are not divorced or outsourced from the outcomes of their decision making and actions, ensures

enhanced planning and delivery of services. As technology offers reach, usability, accessibility and timely feedback, it is a key to developing a resilient HE, with openness at its core.

Technology, Resilience and the Potential of Open Education

The place of technology in pedagogic discourse is a core element of HE research and development (Ravenscroft, 2009; Facer & Sandford, 2010; Higher Education Academy & Joint Information Systems Committee, 2010; Selwyn, 2010). Emergent work focuses upon personalisation, informal learning, open education and, latterly, building resilience (Hall, 2009; Attwell, 2010; Downes, 2010; Winn, 2010). It has been contended that the ability of users to integrate a range of institutional and non-institutional networks, content and tools extends their reflexivity and identity as students and citizens (Hall & Hall, 2010; University of Reading, 2010).

However, there is a danger that an uncritically deterministic approach emerges, with a view of students as expert consumers of technology (Department for Business, Innovation and Skills, 2009; Higher Education Funding Council for England, 2010). There is a tendency for the 'how' of technological implementation to be elevated ahead of the 'why' of its use, and for the socio-historical structures and imperatives imposed by the dominant political economy to be ignored (Gartner, 2010; Johnson et al, 2011). These technical imperatives underpin a strategy of business as usual, doing more for less, cost-effectiveness and increased productivity of labour, and they include, but are not limited to, the following:

- Closed, enterprise-level and private cloud computing systems architectures, focused on third-party technologies rather than locally sourced and maintained networks and solutions.
- Outsourcing services like data storage and management, often to cloud-based providers, based on perceived economic efficiencies ahead of a critical analysis of environmental impact.
- Enclosure and commodification of content and communication provision within app-based and app-augmented reality services, e-books and the location-based, real-world web.
- Persistent and ongoing procurement and renewal of hardware and software, both institutionally and personally, irrespective of the environmental sustainability over a machine's life course.
- A focus on personalised and private use of technologies as a form of identity commodification, even within notionally shared services, for data management and curriculum delivery.
- Always on, any time, anywhere access to services, based upon latency, resilience and failover. In terms of mobile phones, this includes a move towards a 4G standard, with sensory networks and context-sensitive, content delivery architectures, which 'will play a key role in expanding the impact of IT in the physical world' (Gartner, 2010).
- Increased and more pervasive computing power at lower economic cost, including the ability for just-in-time processing of more dynamic, multimedia services and content, and the use of media tablets and kinaesthetic or gesture-based interfaces.
- Increased prioritisation of digital technologies in strategies for internationalisation, work-based learning and distance education. This includes a drive for learning analytics, linked data and data-driven decision making, possibly folding in work on the Semantic Web (Gartner, 2010). The point is to commodify further social relationships and our lived experiences: 'the value resides in applying them in new applications such as social analytics and sentiment analysis' (Gartner, 2010).

Arguably, these strategies for the implementation of educational technology are being used as politically neutral mechanisms for managing the scarcity of resources like money and energy, or the overproduction of carbon, across HE (Gartner, 2010; Higher Education Funding Council for England, 2011). They are not geared to defining strategies for adapting to socio-environmental disruption, and they do not enable universities or their networks to engage with issues of diversity of provision, modularity and feedback. In part this is because the integration of digital technology into the fabric of society and social discourse conceals and distances the complexity and destructiveness of its modes of production, procurement, distribution and consumption from its consumers (Hall, 2010). In Noble's (1998) terms, this is the 'disarming disguise' of high technology, which abstracts our human condition from our sociocultural environment. In order to make sense of a future scenario of wider societal disruption, in the form of large-scale public sector debt and budgetary cuts, climate change, energy security and peak oil, educational technology must be seen

as socially, culturally and politically grounded *for* resilience (Feenberg, 1999; Hemmi et al, 2009; Payton & Williamson, 2009; Selwyn, 2010).

These social issues demand communal responses. In terms of HE, this demands a discourse of educational technology that is more open in nature and implementation, and less universal or totalising in the outcomes it prescribes, in terms of which specific technologies to deploy or how they should be institutionalised. By focusing on resilient responses to disruption, a more radical critique of educational technology beyond models of business as usual emerges. For Facer & Sandford (2010, p. 75), this involves questioning 'the chronological imperialism of accounts of inevitable and universal futures', focused upon always-on technology and its allegedly participative, inclusive, democratic possibilities. Neary & Winn (2009) have amplified this demand for reformation to describe more revolutionary possibilities embedded within the social relations of education, and which might be challenged though more open use of technologies. They stress the significance of the student actively producing her lived experience, with the production of intellectuality being a critical, pedagogic act of resistance, in opposition to the mere consumption of knowledge (Giroux, 2008). The student is encouraged to transcend and live in *excess* of her socially defined role as a learner. This critique includes a fuller engagement with the possibilities of open, shared education, managed in open, shared technologies, to build resilient responses to moments of crisis (Jones et al, 2010).

This is not to argue for the institutionalisation of open education – for instance, in its reduction into the form of open educational resources (OERs) – as a strategy for overcoming disruption and developing resilience. These forms appear to be innovatory, only to be a rehashing and reinforcement of many of the defining attributes of mass production: automation and standardisation, efficiency and the reification of the resource as product or commodity. For instance, in their institutionalised form, OERs refer to the free movement and regeneration of reified commodities protected by liberal property laws (Creative Commons) that guarantee a level of autonomy to digital objects over and above the rights of teaching (labour) and learning (apprenticeship), from which they are abstracted. They risk the promotion of pedagogy-as-production, curriculum-as-distribution and learning-as-consumption, with institutional repositories acting as marketplaces for selling institutionalised goods. In parallel, the labour that produces OERs is placed under the control and supervision of quality assurance, through impact measures. In the institutionalisation of openness, technology risks becoming the cause of our educational provision rather than being a variable of its production (Noble, 1984) or a variable of our engagement with disruption.

Thus, in adapting to disruption, educational technology might underpin truly open, socially driven spaces, where the student learns to become a revolutionary social being rather than an institutionalised agent (Neary & Hagyard, 2010). This open approach breeds mass, social intellectuality (Neary & Winn, 2009), which is geared to communal problem solving and transformation. Open technology is critical in this transformatory, educational work, for it connects social beings within and beyond the institution. This connectivity is a critique of closed, institutionalised systems of education, which are reinforced through locked institutional technologies. An engagement with open education enables us to examine our 'power to' change our social relations, rather than to exist in a state where someone or something has 'power over', or encloses, both our work and ourselves (Holloway, 2002). The possibilities for developing resilience that emerge from the implementation of more open educational technologies include:

- enhancing our ability to create shared spaces for reflecting upon our participation in the activity and labour of (self-)discovery and (self-)invention (Attwell, 2010);
- catalysing a culture and set of values that offer spaces for cultural reinvention;
- organising and engaging with communal rather than libertarian responses to crises where we are deeply connected to the impact of our activity; and
- transforming democratic and participative social relationships.

Situating educational technology within a truly open education is a starting point for developing a resilient education, which rejects a closed, essentialist discourse of efficiency, value for money and more for less (Department for Business, Innovation and Skills, 2009; Willetts, 2011). In the face of disruption, models for a resilient education, underpinned by open approaches to educational technology, are critical.

A Resilient Education?

How can educational technologies underpin a resilient education in the face of peak oil and climate change? If resilience is a function of diversity, modularity and feedback, can we model some possible uses of educational technologies which might themselves be open-sourced for others to use? Central to any such modelling is the curriculum, situated and designed socially, with a focus on its *shared* production and governance, in a very public and practical way (Williams, 1961). Such relationship-based curricula will utilise technologies that enable students to work collaboratively to reassert the idea of the university as a site for critical action in society (Peer to Peer University, 2010; Really Open University, 2011).

This, then, makes the use of educational technologies part of a wider educational project that looks at what the university is for and the nature of its associations. One risk is that by focusing on what are termed the 'low-hanging fruit' of energy efficiency, like replacing desktop PCs with more energy-efficient laptops or deploying multifunctional devices (IBM, 2010), the fundamental disruptions of peak oil and climate change are ignored in favour of discussing ill-defined changes. Thus, IBM (2010) claims that: 'Ultimately, the biggest potential game changer lies in modifying the operational and functional architecture that underpins all the business's systems.' In order to maintain business as usual, to increase affluence and not to impact population growth, societies are asked to consider technological efficiency. The same difficulty exists in redefining how the incorporation of educational technology might be made more resilient within capitalism, beyond uncritical developments like outsourcing and shared services, in particular where hype-cycles predicate growth on technological progress.

However, focusing on the technical imperatives given above, coupled to the three criteria for resilience and the outcomes of the health-care peak oil scenarios, might indicate some possibilities for further work towards a resilient education utilising technology in a more meaningful way. The outcomes of the health-care scenario-planning focused on: doing, producing and consuming differently in a more diverse set of community ecologies; doing more networking and community engagement locally, and between distributed, modular communities; rationing the always-on access to resources for the whole community; and essential, planned and shared work that maintains the existence of the community through feedback on actions and activities.

As with health care, possibilities for education and educational technology cannot be divorced from global solutions. However, for universities, possibilities might include the following:

- Open systems architectures are implemented, focusing upon open-sourced, community-designed and community-implemented technologies in an appropriate mix with cloud-based solutions. Educational technology is a public rather than a private or institutionalised good.
- Increased prioritisation of digital technologies in strategies for associational democracy, modular community-building, and the diversity of skills sharing and development. Community- and problem-based curricula focus upon developing social relationships and lived experiences, so that communities get immediate feedback on the impact of their actions and solutions.
- University networks act as hubs for local community-level engagement with technologies and high-level digital processes. Technologies are used for maintaining the diversity of skill sets within and across communities, rather than commodifying them or chasing the latest hype.
- Digital identities are forged socially, rather than being privatised, and individual access to the Web is less of a right than community access, in order to maintain the modularity of skills. A literacy of openness, which legitimises sharing as social practice and as social process, is central.
- Technological deployment depends on local net energy generation, with essential, high-power-input tasks requiring timetabling and negotiation. Community consensus-building is used to plan upgrades, redundancy, latency, etc., and always-on, any time, anywhere access to services becomes less important.
- Outsourcing decisions are based on community need related to a critical analysis of environmental impact, rather than on a discourse of cost-effectiveness, monetisation, economic value and efficiency. There is a lessening of an expectation of always-on access to data, information and services.
- The relevance of marginal developments like app-based, locative and augmented reality services in our current moment is questioned through consensus.

- Persistent and ongoing procurement and renewal of hardware and software is rejected in favour of reuse and repurposing. There is an acceptance of less energy-intensive, individualised access to processing power.
- The use of technology in open education rejects a post-colonial discourse focused upon new markets for one of modularity and sharing expertise.
- Students and staff produce and share their open curricula and artefacts, through transdisciplinary approaches to global crises like peak oil and climate change. Solutions are not a new form of currency, but help maintain the diversity of expertise in a community and help connect modular networks together. Issues to do with copyright, data protection and intellectual property are less important than sharing.

The focus here is on open and social, rather than individual access to technology as the driver for ensuring communal resilience. This moves away from constant innovation in technology and technological practices for hype's sake, in order to empower ever more diverse groups of learners. This is not about relocalisation, as these are global issues. The aim is for open technological solutions to help recast new modes of production, nested in community-based curricula and where institutions are hubs rather than having new power over products and labour. Online engagement is one form of socially emergent and negotiated practice that is managed in public, and then dissolved into the fabric of community. However, moving beyond these risks, in order to develop an open curriculum for resilience, is more complex than a technological fix, and requires us to recognise and engage in the critique of an assemblage of socio-environmental activities or practices related to the production, exchange and consumption of life (Harvey, 2010). Situating educational technology with an open curriculum for resilience enables ways of challenging hegemonic, mental conceptions of the world and framing new social relations in light of developing crises.

Conclusion

In a future of peak oil, climate change, energy depletion and low or no economic growth, the current forms of HE look increasingly unsustainable. How might universities engage their communities in a project of adaptation to new socio-economic and environmental realities? Based on an analysis of business-as-usual and health-care scenarios, one possible model is a more community-based, educational lifestyle, which will be hugely challenging to implement and take several generations.

Open forms of higher learning and HE must be central to a shared engagement with socio-economic disruption, and in framing spaces for personal and communal resilience. A key role for open curriculum development is the critique of hegemonic discourses and the contexts in which they emerge, so that they can be challenged and so that co-governance as well as co-production is enabled and tested. A key role for technology, in a world of increasing uncertainty and disruption, is to provide spaces for individuals to engage in authentic partnerships, in mentoring and enquiry, and in the processes of community, social governance and action.

There is still a risk that the provision of frameworks for free associations between individuals will leave some people marginalised, and the creation of appropriate contexts that spark or forge opportunities for participation is pedagogically critical. Hence, a literacy of openness is required, in order to overcome tensions over the ownership of technology, the role of networks and practices, social engagement with communities at scale, and the validation/accreditation of activities. Despite these tensions, the capacity of technology to improve the opportunities for people to work together to shape and solve problems, and to further their critical understanding of themselves and of the world they live in, is significant. Thus, the appropriate use of technology underpins the development of an open curriculum for resilience in three areas:

1. The enhancement of student agency in producing *both* relationships within and across open communities *and* open, socially situated tasks is important. The student's power over the tools she uses and her power to negotiate agreed sociocultural norms is fundamental here, although issues to do with social anxiety, difference, self-conception and allegiance within closed groups, and the marginalisation of certain users, form potential risks. However, a modular approach to the use of technology for agreed tasks in meaningful networks is one aspect of defining resilience.

2. Reframing HE experiences as open, in order to allow learners to test their self-concept in communities, is critical. Educational technologies offer an array of supportive networking contexts where learners can model practice and self-expression. Formative development is ongoing and demands a range of open engagements on a range of tasks with a range of roles in a range of networks. This diverse learning approach is a second aspect of defining resilience.
3. Feedback for learning from multiple perspectives underpins authentic personal development. Technologies facilitate near real-time feedback and enable the student to recognise the impact of her actions, which is a third aspect in the definition of resilience.

In this tripartite approach, the production and reuse of artefacts is of secondary importance to the social relationships that are redefined by educators and students, and the focus on people and values that is in turn assembled through open education (Lamb, 2010). In overcoming alienation and disruption, a resilient education underpinned by open technologies and architectures enables us to critique and overcome unsustainable, commodified, institutionalised forms of education. The challenge is to develop such a critique in the face of everything.

References

Ace (2009) World Oil Production Forecast – Update November 2009, *Oil Drum*, 23 November. http://bit.ly/8pQlo0

Aleklett, K. (2005) The Oil Supply Tsunami Alert. http://bit.ly/ejNSyH

Aleklett, K. (2010) Agriculture as Provider of Both Food and Fuel, *Aleklett's Energy Mix*, 19 May. http://bit.ly/h4GRw1

Attwell, G. (2010) Notes on Open Education and Critical Pedagogy, *Pontydysgu – Bridge to Learning*, 2 August. http://bit.ly/d3a2kK

Breakthrough Institute (2011) 'Energy Emergence: rebound and backfire as emergent phenomena' – report overview, 17 February. http://bit.ly/grWv15

Colgan, J.D. (2011) Oil, Revolution, and International Conflict: the origins of resource-backed aggression. http://bit.ly/f9YgsH

Corbett Broad, M. (2010) Higher Education's New Competitive Landscape, *Leader to Leader*, 59, 14-17.

Department for Business, Innovation and Skills (BIS) (2009) *Higher Ambitions: the future of universities in a knowledge economy*. London: BIS. http://bit.ly/9IidAg

Department of Energy and Climate Change (DECC) (2010) *Digest of United Kingdom Energy Statistics (DUKES)*. London: United Kingdom Statistics Authority. http://bit.ly/biq7Yk

Downes, S. (2010) Collaboration and Cooperation, 12 April. http://bit.ly/hvm9zm

Edwards, C. (2009) *Resilient Nation*. London: Demos.

European Commission (2008) *20 20 by 2020: Europe's climate change opportunity*. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, COM(2008) 30 final, Brussels, 23 January. http://bit.ly/g7w653

Facer, K. & Sandford, R. (2010) The Next 25 Years? Future Scenarios and Future Directions for Education and Technology, *Journal of Computer Assisted Learning*, 26(1), 74-93. http://dx.doi.org/10.1111/j.1365-2729.2009.00337.x

Feenberg, A. (1999) *Questioning Technology*. London: Routledge.

Gail the Actuary (2009) Oil Production Is Reaching Its Limit: the basics of what this means, *Oil Drum*, 16 November. http://bit.ly/U3bfz

Gail the Actuary (2010) Science 1101 Part 1: the science of oil and peak oil revisited, *Oil Drum*, 20 June. http://bit.ly/aabvUq

Gartner (2010) Hype Cycles 2010. http://bit.ly/aQFgs0

Giroux, H.A. (2008) *Border Crossings: cultural workers and the politics of education*, 2nd edn. London: Routledge.

Greer, J.M. (2011) The Onset of Catabolic Collapse, *Energy Bulletin*, 19 January. http://bit.ly/fm2nEL

Hall, R. (2009) Towards a Resilient Curriculum for HE, *DMU Learning Exchanges*, 8 December. http://bit.ly/9Nxdvs

Hall, R. (2010) The iPad and the Essentialism of Technology in Education, *DMU Learning Exchanges*, 8 September. http://bit.ly/aMMrqG

Hall, R. & Hall, M. (2010) Scoping the Pedagogic Relationship between Self-Efficacy and Web 2.0 Technologies, *Learning, Media and Technology*, 35(3), 255-273. http://dx.doi.org/10.1080/17439884.2010.485204

Harvey, D. (2010) *The Enigma of Capital: and the crises of capitalism*. London: Profile Books.

Helm, D., Smale, R. & Phillips, J. (2007) Too Good to Be True? The UK's Climate Change Record, 10 December. http://bit.ly/efQfC7

Hemmi, A., Bayne, S. & Land, R. (2009) The Appropriation and Repurposing of Social Technologies in Higher Education, *Journal of Computer Assisted Learning*, 25(1), 19-30. http://dx.doi.org/10.1111/j.1365-2729.2008.00306.x

Herring, H. & Roy, R. (2002) Sustainable Services, Electronic Education and the Rebound Effect, *Environmental Impact Assessment Review*, 22(5), 525-542. http://dx.doi.org/10.1016/S0195-9255(02)00026-4

Higher Education Academy & Joint Information Systems Committee (2010) Open Educational Resources Programme – Phase 2. http://bit.ly/149LfB

Higher Education Funding Council for England (2011) HEFCE Strategy Statement: Opportunity, Choice and Excellence in Higher Education. http://bit.ly/g2FZnP

Hirsch, R.L. (2008) Mitigation of Maximum World Oil Production: shortage scenarios, *Energy Policy*, 36(2), 881-889. http://dx.doi.org/10.1016/j.enpol.2007.11.009

Hirsch, R.L., Bezdek, R. & Wendling, R. (2005) Peaking of World Oil Production: impacts, mitigation and risk management, February. http://1.usa.gov/OsexK

Holloway, J. (2002) *Change the World without Taking Power*. London: Pluto Press.

Hopkins, R. (2009) Resilience Thinking: an article for the latest 'Resurgence', *Transition Culture*, 21 October. http://bit.ly/3ugobl

Hubbert, M.K. (1956) Nuclear Energy and the Fossil Fuels. Publication No. 95, Shell Development Company, Houston, June. http://bit.ly/cfjlxz

IBM (2010) Energy and Low Carbon: more haste, less waste. http://ibm.co/eJOxaR

International Energy Agency (IEA) (2010a) *World Energy Outlook 2010: executive summary*. Paris: IEA. http://bit.ly/cGz449

International Energy Agency (2010b) World Energy Outlook 2010: key graphs. http://bit.ly/boyZYI

International Energy Agency (2011) Oil Market Report. http://bit.ly/eb8ha

Jackson, T. (2007) Rebound Launch. Keynote presentation at Energy Institute, London, 31 October. http://bit.ly/cldoaZ

Jackson, T. (2009) *Prosperity without Growth? The Transition to a Sustainable Economy*. London: Sustainable Development Commission. http://bit.ly/xLKGf

Johnson, L., Smith, R., Willis, H., Levine, A. & Haywood, K. (2011) *The 2011 Horizon Report*. Austin, TX: New Media Consortium. http://bit.ly/fYalBu

Joint Information Systems Committee (2011) Greening ICT Programme. http://bit.ly/cWi47q

Jones, P., Selby, D. & Sterling, S. (2010) *Sustainability Education: perspectives and practice across higher education*. London: Earthscan.

Kilian, L. (2009) Oil Price Volatility: origins and effects. http://bit.ly/e0t5Og

Lamb, B. (2010) Open Contempt. Closing keynote address at UK Joint Information Systems Committee Open Educational Resources International Symposium, London, 23 July. http://bit.ly/99TI2h

Levitt, B.B. & Glendinning, C. (2011) The Problems with Smart Grids, *Energy Bulletin*, 18 March. http://bit.ly/dWtQjq

Meiksins-Wood, E. (1997) Back to Marx, *Monthly Review*, 49(2). http://bit.ly/gJIsK4

Mohrman, N. (2011) Educational Exchanges: what China should *not* adopt from United States higher education, *CERC Studies in Comparative Education*, 27(2), 127-144.

Neary, M. & Hagyard, A. (2010) Pedagogy of Excess: an alternative political economy of student life, in M. Molesworth, L. Nixon & R. Scullion (Eds) *The Marketisation of Higher Education: the student as consumer*. London: Routledge.

Neary, M. & Winn, J. (2009) Student as Producer: reinventing the undergraduate curriculum, in M. Neary, H. Stevenson & L. Bell (Eds) *The Future of Higher Education: policy, pedagogy and the student experience*, pp. 192-210. London: Continuum.

New Economics Foundation (NEF) (2009) *The Great Transition: a tale of how it turned out right*. London: NEF. http://bit.ly/8oJfeg

Noble, D.F. (1984) *Forces of Production: a social history of industrial automation*. New York: Alfred A. Knopf.

Noble, D.F. (1998) Digital Diploma Mills: the automation of higher education, *First Monday*, 3(1). http://bit.ly/cU1ml9

Oil Depletion Analysis Centre (ODAC) & Post Carbon Institute (PCI) (2010) *Preparing for Peak Oil: local authorities and the energy crisis*. London: ODAC & PCI. http://bit.ly/dLxnCJ

Owen, N.A., Inderwildi, O.R. & King, D.A. (2010) The Status of Conventional World Oil Reserves: hype or cause for concern? *Energy Policy*, 38(8), 4743-4749. http://dx.doi.org/10.1016/j.enpol.2010.02.026

Payton, S. & Williamson, B. (2009) *Enquiring Minds: innovative approaches to curriculum reform*. Year 4 Report, October. Bristol: Futurelab. http://bit.ly/3MtrM2

Peer to Peer University (2010) *About P2PU*. http://p2pu.org/

Pielke, Jr., R. (2009) The British Climate Change Act: a critical evaluation and proposed alternative approach, *Environmental Research Letters*, 4(2), 1-7.

Pielke, Jr., R. (2010) *The Climate Fix: what scientists and politicians won't tell you about global warming*. Lyndhurst, NJ: Barnes & Noble.

Raffle, A.E. (2010) Oil, Health and Healthcare, *British Medical Journal*, 341, c4596. http://dx.doi.org/10.1136/bmj.c4596

Ravenscroft, A. (2009) Social Software, Web 2.0 and Learning: status and implications of an evolving paradigm, *Journal of Computer Assisted Learning*, 25(1), 1-5. http://dx.doi.org/10.1111/j.1365-2729.2008.00308.x

Really Open University (2011) Really Open University. http://bit.ly/bS0tl8

Royal Academy of Engineering (RAE) (2010) *Generating the Future: UK energy systems fit for 2050*. London: RAE. http://bit.ly/hnMVm8

Selwyn, N. (2010) Looking beyond Learning: notes towards the critical study of educational technology, *Journal of Computer Assisted Learning*, 26(1), 65-73. http://dx.doi.org/10.1111/j.1365-2729.2009.00338.x

Shepherd, J. (2010) University Teaching Budgets Slashed, *Guardian*, 1 February. http://bit.ly/cmpzpJ

Sorrell, S. (2007) *The Rebound Effect: an assessment of the evidence for economy-wide energy savings from improved energy efficiency*. London: UK Energy Research Centre. http://bit.ly/aKAro6

Thrift, N. (2010) A Question (about Universities, Global Challenges, and an Organizational-Ethical Dilemma), *GlobalHigherEd*, 8 April. http://bit.ly/b8uGpz

UK Industry Taskforce on Peak Oil and Energy Security (2010) *The Oil Crunch: a wake-up call for the UK economy*. London: Ove Arup. http://bit.ly/cAcmrL

United Nations (2010) The Human Development Index (HDI). http://bit.ly/9GoWte

University of Reading (2010) This Is Me Project. http://thisisme.reading.ac.uk/

US Energy Information Administration (2011) This Week in Petroleum. http://1.usa.gov/haVz4K

Ward, I., Ogbonna, A. & Altan, H. (2008) Sector Review of UK Higher Education Energy Consumption, *Energy Policy*, 36(8), 2939-2949. http://dx.doi.org/10.1016/j.enpol.2008.03.031

Willetts, D. (2011) Speech at Universities UK Spring Conference, Woburn House, London, 25 February. http://bit.ly/g41CtU

Williams, R. (1961) *The Long Revolution*. London: Chatto & Windus.

Winn, J. (2010) Posts Tagged 'ResilientEducation', *Expedient Means*, University of Lincoln. http://bit.ly/9sexuE

World Bank (2010) Energy Use (kg of Oil Equivalent Per Capita). http://bit.ly/eCfueF

World Bank (2011) World Bank Indicators. http://bit.ly/9B9XqR

Zittel, W. (2001) Analysis of the UK Oil Production, 22 February. http://bit.ly/aPuDks

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Towards Teaching in Public

Reshaping the Modern University

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Towards Teaching in Public.indb iii 11/1/2011 2:23:43 PM

Chapter 9

Open Education: From the Freedom of Things to the Freedom of People

Joss Winn

Introduction

Marx declared that '[t]he wealth of those societies in which the capitalist mode of production prevails, presents itself as "an immense accumulation of commodities," its unit being a single commodity. Our investigation must therefore begin with the analysis of a commodity' (Marx 1976: 125). This chapter offers a critical analysis of Open Education, a growing international movement of educators and educational institutions who, through the use of the internet, seek to provide universal access to knowledge. This analysis focuses particularly on Open Educational Resources (OER), the current, dominant form of Open Education, and attempts to understand the purpose and production of this public good within the immense accumulation of commodities that characterizes the creation of value – also termed wealth – in capitalist society.

It is acknowledged that Open Education is a potentially radical form of public education and, in spite of the differences in meaning of public and open (which are not the focus of this chapter), Open Education can be understood as a public good or, rather, a form of social wealth. Here, the use of the term social wealth draws from Marx and refers to an understanding of value that is intrinsically related to a historically specific mode of production, capitalism (Postone 1993, Wood 2002). Understood as a form of social wealth in capitalist society, Open Education can be subjected to a critique from the standpoint of critical political economy which recognizes that social wealth is a historically specific form of value, created through specific relations among people, to which Marx refers as 'a refined and civilised method of exploitation' (Marx 1976: 486). In this view, social wealth is derived from labour that is dominated by particular social structures. As Postone make clear,

Towards Teaching in Public.indb 133 11/1/2011 2:23:48 PM

> Within the framework of Marx's analysis, the form of social domination that characterizes capitalism is not ultimately a function of private property, of the ownership by the capitalists of the surplus product and the means of production: rather, it is grounded in the value form of wealth itself, a form of social wealth that confronts living labor (the workers) as a structurally alien and dominant form of power. (Postone 1993: 30)

Taking this view of social wealth, being open or public does not offer an adequate way out of the capitalist form of social domination. We must examine aspects of Open Education as a public good in capitalist society from the perspective of a critique of value as the form of social wealth in capitalist society. The latter is derived from the domination of people by alien structures, which leads us to question the notion that what is public is necessarily good. The issue then becomes, can Open Education create a form of value that helps us overcome those alien structures? If not, can it point us towards an emancipatory social practice that does create a new form of social wealth? In order to answer this question, the first section of this chapter situates Open Education, not within a history of technology which is relatively straightforward, but within the history of neo-liberal education policy in the UK over the last 30 years. Open Educational Resources are then analysed using Marx's critique of value in order to understand better whether Open Education points towards a different form of social wealth.

The Public are Our First Students

In 2007, the Open Society Institute and the Shuttleworth Foundation convened a meeting in Cape Town, where a number of leading Open Education proponents sought to find ways to 'deepen and accelerate their efforts through collaboration' (CTOED 2007). An outcome of this meeting was the Cape Town Open Education Declaration (CTOED), which described Open Education as an emerging movement that 'combines the established tradition of sharing good ideas with fellow educators and the collaborative, interactive culture of the Internet' (CTOED 2007). The Declaration begins

> We are on the cusp of a global revolution in teaching and learning. Educators worldwide are developing a vast pool of educational resources on the Internet, open and free for all to use. These educators are creating a world where each and every person on earth can access and contribute

> to the sum of all human knowledge. They are also planting the seeds of a new pedagogy where educators and learners create, shape and evolve knowledge together, deepening their skills and understanding as they go. (CTOED 2007)

It is understandable that the authors should begin their Declaration by celebrating what had so far been achieved. Indeed, over the last decade or so, proponents worldwide have attracted millions of pounds from philanthropic and state funding. Although still relatively few in number, individual educators and their institutions have created a discernible movement that has produced tens of thousands of educational materials, often entire courses, and made them available to anyone with access to the internet (Winn 2010). Today, there are international consortia, conferences, NGOs and an increasing number of government reports that promote the opening of education.

The Declaration is not a manifesto that defines the Open Education movement, but is an attempt by a small number of influential individuals to build the movement through a unifying vision, which anyone can sign up to; at the end of 2010, over 2,100 individuals and 220 organizations had done so. Significantly, the authors of the Declaration acknowledge that it is heavily focused on Open Educational Resources (OER), the aspect of Open Education that continues to receive the greatest amount of effort and funding.

Open Educational Resources (OER) refers to the 'educational materials and resources offered freely and openly for anyone to use and under some licenses to re-mix, improve and redistribute' (Wikipedia contributors 2011). Typically, those resources include both learning resources and tools by which those resources are created, managed and disseminated. They are defined as open by the application of a permissive licence, such as those developed by Creative Commons (Creative Commons 2011). At the heart of the Declaration are three strategies aimed at increasing the reach and impact of OERs. Their implementation will require changes in the relationship between teachers and learners and in their practices; changes in the creation, use and distribution of educational resources and changes in policy to support the open, participatory culture of the Open Education movement.

The Declaration's emphasis on OER is not surprising. For a number of years, there have been efforts to create Re-usable Learning Objects (RLO), digital teaching and learning materials that are produced and shared through an adherence to formal technological standards so they can be disaggregated and reconstituted for re-use over time and by other educa-

tors (Freisen 2003). In contrast, OERs can be understood as less formally identified in terms of their composition and adherence to technological standards, yet more formally identified through the application of Creative Commons or other permissive licences; the latter act as methods of both protecting the Intellectual Property Rights (IPR) of the creator (an individual or institution) and liberalizing the potential re-use of the materials.

One of the reasons why OERs remain the dominant mode of expression of Open Education is that the creation and licensed distribution of these teaching and learning materials has been very successful in attracting philanthropic and state funding over the last ten years. For example, in 2009, MIT received over $1.8m for its OpenCourseWare project, which has systematically published OERs for over 2,000 of MIT's courses since 2001 (Wiley 2009). This high profile project has raised the profile of OERs and similar projects have followed elsewhere. In 2008, the UK Higher Education Funding Council (HEFCE) provided £4.7m of funding to the Joint Information and Systems Committee (JISC) and the Higher Education Academy (HEA) to 'make a significant amount of existing learning resources freely available online, licensed in such a way to enable them to be used and re-purposed worldwide' (JISC 2009b). Similarly, £5m was provided in 2010 to 'build on and expand the work of the pilot phase around the release of OER material, and commence research and technical work examining the discovery and use of OER - specifically by academics' (JISC 2010).

It is important to remember that proponents of Open Education are advocating that all university courses should be made publicly available for re-use. In the author's experience, the process of designing, creating and publishing OERs for public re-use affects the way in which teachers conceptualize both their course and the public as students (Winn 2010). Hence, Open Education has the potential to reform not only the way that teachers teach and students learn, but also teachers' perception of the student and the role of universities as institutions where knowledge is somehow produced. Arguably, Open Education goes beyond Burawoy's assertion, which Neary and Morris highlight in Chapter 1 of this book, that 'students are our first public' (Burawoy 2004: 1608) and turns this idea on its head: for Open Education, the public are our first students.

The Open Education movement has not gone unnoticed by government. In the UK, the funding for the pilot phase of OER projects was first mentioned by the then Minister for Higher Education David Lammy, during a

Towards Teaching in Public.indb 136 11/1/2011 2:23:48 PM

speech (Lammy 2009) where he launched *The Edgeless University* (DEMOS 2009). This report argued for a 'rebirth' of universities, no longer as simply harbours of knowledge, but as users of online tools and open access as a means to survive in a changing environment. Thus, Open Education is advocated by the government both as a way to respond to changes that technology is imposing on institutions and as a way to further liberalize the higher education sector rationalized by the rhetoric of access, democratization and choice.

Open Education within the Neo-Liberal Transformation of Higher Education

The Edgeless University report (DEMOS 2009) posited technology as both a problem and solution for universities. Advocates of Open Education saw this as an opportunity to further their vision of 'a world where each and every person on earth can access and contribute to the sum of all human knowledge' (CTOED 2007), yet this view neglects to situate the role of technology, and in particular, Open Education, within the history of educational reform in the UK over the last three decades. Since 1978, there have been successive policy changes within UK higher education, which can be identified as points along a trajectory of neo-liberal reform. Finlayson and Hayward (2010) have argued that between 1978 and 1997, Conservative government policy led to

- an expansion of the university system, leading to resource scarcity
- the deliberate imposition of complex conditions of resource competition between institutions
- the adoption by all but a small number of elite institutions of a corporate management structure appropriate to these conditions.

The advent of the Labour government in 1997 marked a shift from the years of Tory attrition to the promotion of the knowledge economy, within which universities were primarily conceived as engines for economic growth. That is, '[c]onservative policy was about reducing the economic input, while Labour sought to increase their economic output' (Finlayson and Hayward 2010: 2). Whereas the Conservative government had sought to impose corporate structures of management on universities as a matter of efficiency, the Labour government set them to work, fuelling the engine of

the knowledge economy with intellectual property produced by a massive programme of widening participation of human capital.

In their analysis, Finlayson and Hayward (2010) identified four rationales for such reforms of higher education: expansion, efficiency, economic accountability (value for money) and political accountability (democratization or widening participation). The values of expansion, efficiency and accountability were embedded in successive government-commissioned reports, which led to their practical realization and implementation through changes in legislation (for example, Jarratt's 1985 *Report of the Steering Committee for Efficiency Studies in Universities* and the *Education Reform Act* (DES 1988)). These values themselves must also be located within their historical context at the end of the 1970s, a period that witnessed the move from Keynesian welfarism to neo-liberal privatization, from Fordism to post-Fordism and a corresponding shift in the West away from manufacturing towards services and the knowledge economy. It is along this historical trajectory, when the heteronomy of neo-liberalism has become the new common-sense (Stevenson and Tooms 2010), that we should try to understand the development of Open Education, a term originally used in the 1960s and 1970s to refer to changes in classroom organization and pedagogy but now used largely to refer to a resource-centric mode of production and consumption of information.

It is beyond the scope of this chapter to situate the Open Education movement of the last ten years within the historical context of educational reform. However, for it to succeed in its ambitions it is necessary for the proponents of Open Education to develop a greater sense of self-reflexivity, to ask how it is of its time and to recognize the structural constraints and imperatives within which they are working. For example, almost all of the funding that has been directed towards Open Education has been around the development of OERs, either from private philanthropic organizations in the US, such as the Mellon Foundation and Hewlett Foundation or, in the UK, government funding like that administered by HEFCE (Stacey 2010). Most recently, the US government announced a $2bn funding programme over four years for OERs to develop and make innovative use of a variety of evidence-based learning materials, including cutting-edge shared courses and open educational resources. These resources would be available online for free, greatly expanding learning opportunities for students and workers. (United States Department of Labor 2011)

To what extent, we might ask, are these funders serving their own specific interests? Is Open Education being used as a method of compensating for a decline in the welfare state? Is government advocacy of OER a way of

Towards Teaching in Public.indb 138 11/1/2011 2:23:48 PM

tackling resource scarcity in an expanding system of higher education? To what extent is Open Education a critical response to neo-liberal reforms of education (Nelson and Watt 2004, DeAngelis and Harvie 2009) or, as Lammy (2009) makes clear, is it first and foremost meant to serve the knowledge economy and the increasing liberalization of higher education? If 'education is a political activity, framed within a political environment' (Stevenson and Tooms 2010: 6), how do we frame Open Education as a political activity within a political environment?

Similarly, to locate Open Education within a history of the use of technology in education might also tell us something about the overall trajectory within which Open Education exists. Throughout the history of capitalism, technology has served to 'improve' the efficiency of production and no less so than in the production of the knowledge economy (Noble 1998). As it will be argued below, Open Education in its dominant, institutional OER form can be understood as the application of technological innovation and efficiencies to create greater value out of academic labour an entirely capitalist, not a revolutionary endeavour.

The Commodification of Open Education and the Role of Academic Labour

This section shows how Marx's critical social theory of capital based upon the categories of commodity, labour and value remains apposite for an analysis of Open Education today and in doing so, how our understanding of the public good is defined by the alien structures that create social wealth in capitalist society. According to Marx, capital is a historically specific form of social mediation through commodities whose source of value is human labour. The categories of commodity, labour and value are central to Marx's theory of capital as *the* hegemonic logic of modernity. Recent Marxist writers (Wood 2002, Clarke 1991a, Postone 1993) have shown the extent of capitalism's imperatives and constraints, and write about the history of capitalism as driven by an imperative or 'unfreedom', that is 'the unfolding of an immanent necessity' (Postone 2009: 32). As Neary elaborates in the final chapter of this book, the education system, like all other social institutions, should be understood as contained by and in many ways complicit in the persistence of this unfreedom. When its proponents refer to Open Education as a 'revolution in teaching and learning' (CTOED 2007), we should question whether Open Education is an emancipatory practice and ask how the imperatives and constraints of capitalism manifest themselves

Towards Teaching in Public.indb 139 11/1/2011 2:23:48 PM

within it. A preliminary attempt to answer these questions can be found in Marx's categories of the commodity, labour and value by revealing their form in the Open Education movement.

For Marx, the categories of labour and value have dual characteristics which are embodied in the commodity. In a capitalist society, the commodity mediates the way worker and employer, friends, family, teachers and students relate to one another. Every thing (commodity) has the dual characteristic of use-value and exchange-value. Its use value is not only the material, qualitative usefulness of the thing (such as an OER that can be used to teach or learn something), but also the bearer of its exchange value (its dynamic quantitative relation) (Marx 1976). All societies throughout history have understood the utility of things (use value) but it is unique to capitalist societies that the exchange value of a commodity becomes the reason why things are produced (Marx 1976). Exchange value is an abstraction, a form of equivalence and a defining characteristic of all commodities. According to this view, the value of an OER to the institution that releases it is not simply in its usefulness but in its relative equivalence to the exchange value of other commodities. It is this real, yet, abstract, constantly changing, value embedded in the potential for exchange that is common to all commodities.

The measure of this real abstraction (its value) is to be found not in the commodity's usefulness, but in the dual characteristics of labour: concrete labour (productive, purposeful human activity) and abstract labour (the objectified expenditure of labour measured against the total labour power of society). Marx describes abstract labour as the common 'congealed quantities of homogeneous human labour' (Marx 1976: 128), a commodity itself, whose value is measured by the socially necessary labour-time to produce any use value under the normal conditions of production and the average skill and intensity of labour prevalent in society (Marx 1976). In capitalism, social relations, mediated by the circulation of commodities, puts out of sight and out of mind the concrete labour expended to create the usefulness of the object so that we relate to one another through the exchange of things, whose source and substance of value is found in the social equivalence of abstract labour. Finally, Marx's theory of surplus value refers to the dynamic force of capitalism which is the imperative to accumulate value through exchange; that is, buying in order to sell. Technology, machines and commodities, can transfer their value but only labour-power provides the opportunity to create more value as its value must be less than that which it valorizes in the production process. The form in which surplus value is generally realized is profit in the form of money which is then circulated in exchange for more commodities and so on (Marx 1976).

Towards Teaching in Public.indb 140 11/1/2011 2:23:48 PM

The Value of the OER Commodity

In the Marxist view, the Open Educational Resource is a commodity, a digital file, text book, pedagogical tool or series of lectures, which has both a use value and exchange value. The use value of an OER is in how we can teach with it and what we can learn from it. However, according to Marx, it is not enough for an object to simply have a use value in capitalist society, it must also have an exchange value, which is how the value of OERs can be expressed. The value of the OER commodity is defined by the ability to share (exchange) the resource for public re-use. Arguably, it is for this reason that sharing is so central to the self-identity of the Open Education movement. It is the process by which the movement's value becomes apparent and, potentially, by which institutions can accumulate surplus value.

Educational resources have always been created by teachers, but the imperative to share them is what defines Open Education. Technologies such as the internet and licences such as Creative Commons are employed to help realize and safe-guard the value of the educational resource and can be used both to liberate and protect the OER commodity. The internet provides a medium for exchange and the Creative Commons licence guarantees the attributed, unfettered exchange from producer to consumer, overcoming the bottleneck of one-to-one negotiation over the appropriate use of the resource. Through the use of Creative Commons licences as a legal standard for exchange, the circulation of the OER commodity on the internet can occur at great velocity (Winn 2011).

The concrete labour of the person who produces an OER is the mental and physical energy exerted in the process of designing, writing, building and publishing the resource itself. In capitalist society, employers are not primarily interested in employees as complex, social individuals, but in the contribution that their labour-power can make to the value of, in this case, the university. Employees are remunerated for the time spent expending their energy, receiving less than their overall value to the institution (Marx 1976). Employees are a source of value for the university in a number of ways, including providing quality assured teaching, attracting research income and enhancing the reputation of the institution. The creation of OERs therefore exists only within the capitalist value accumulation process.

In capitalist society, employers are compelled to ensure that employees are as productive as possible within the limits of time and space. The value of the OER, therefore, is that a single teaching resource is a depository of value for exchange outside of the traditional time and space of the physical classroom. The publishing of the OER on the internet initiates an act of

Towards Teaching in Public.indb 141 11/1/2011 2:23:48 PM

exchange which may realize surplus value for the institution in several ways; this is evident from the constantly recurring discussions about sustainability within the Open Education movement (McGill *et al.* 2008). How can OERs keep producing value over time? If OERs cannot create value over time or, in other words, if there is no sustainable business case for OERs, then can institutions continue to justify their production?

Conjuring Value Out of MIT's OpenCourseWare

MIT's OpenCourseWare (OCW) initiative is the single largest institutional provision of OERs to date, offering teaching and learning materials for over 2,000 of its courses. This initiative provides a good example of how Open Education, currently dominated by the OER commodity form, is contributing to the predictable course of the capitalist expansion of value. Through the use of technology, MIT has expanded its presence in the educational market by attracting private philanthropic funds to create a competitive advantage, which has yet to be surpassed by any other single institution. In this case, technology has been used to improve the labour of MIT academics as a source of value, who produce lecture notes and recordings of lectures which are then published on MIT's website. In this process, value has been created by MIT through the novel application of science and technology, which did not exist prior to the inception of OCW in 2001. Over ten years, 78 per cent of the OCW initiative has been paid for by external, mostly philanthropic, income (d'Oliveira and Lerman 2009). In 2009, this valorization process attracted $1,836,000 of private philanthropic funding, donations and commercial referrals, contributing 51 per cent of the annual operating costs of the OCW initiative, the other 49 per cent being contributed by MIT (d'Oliveira and Lerman 2009). Through the production of OERs on such a massive scale, MIT has released into circulation a significant amount of capital which enhances the value of its brand as educator and innovator. Through the OCW initiative, additional value has been created by MIT's staff, who remain the source and substance of the value-creating process. Even though the OERs are non-commercially licensed and require attribution in order to re-use them, the production of this value-creating property can be understood within the 'perpetual labour process that we know better as communication' (Söderberg 2007: 72). Understood in this way, the commodification of MIT's courses occurs long before the application of a novel licence and distribution via the internet. OCW is simply 'a stage in the metamorphosis of the labour process' (Söderberg 2007: 71).

Following this initial expansion of the value of OCW and MIT's leadership position in Open Education, and with the private philanthropic funding that has supported it due to run out, new streams of funding based on donations and technical innovation are being considered to enhance the value of the materials provided (d'Oliveira and Lerman 2009). Innovation in this area of education has made the market for OER competitive and for MIT to retain its major share of web traffic, it needs to refresh its offering on a regular basis and seek to expand its footprint in the educational market. Proposed methods of achieving this are, naturally, technological: the use of social media, mobile platforms and a 'click to enroll' system of distance learning (Wiley 2009). More recently, reflecting on the tenth anniversary of OCW, one of the founders of the initiative underlined their objective for the next ten years.

> Our ambition is to increase the impact of OCW by an order of magnitude,' says Professor Dick Yue, who chaired the committee that proposed OCW and also advises the program. 'If we've reached 100 million people in our first ten years, we want to reach a billion in the next ten. If a million educators used our content in their classrooms so far, we hope to help 10 million use the content in our next decade.' (MIT 2011a)

The plan to expand the OCW initiative ten-fold to reach a billion people in the next ten years has four strands, each based around the objective of a quantitative expansion of MIT's capital in the global OER commodity circuit: placing OCW everywhere; reaching key audiences; creating communities of open learning and empowering educators worldwide (MIT 2011b). In this respect, technology, such as the internet, has had both an intensive and extensive effect. It allowed MIT to intensify the productivity of its academics through the duplication of digital resources and to extend the reach and value of the MIT brand through the distribution of OCW. The economic imperative to expand can be understood as a compulsion enforced by an increasingly competitive market for OER (Wood 2002).

MIT's statement concerning the need to find new ways to create value out of their OCW initiative is a good example of how value is temporally determined and quickly diminishes as the production of OERs becomes generalized through the efforts of other universities. Seen as part of MIT's entire portfolio, the contribution of OCW follows a well-defined path of capitalist expansion, value creation and destruction and highlights the need for constant innovation in a competitive environment. It also points to the potential crisis of OER as an institutional commodity form, through

the diminution of academic labour, which is capitalism's primary source of value, and the declining value of the generalized OER commodity form, which can only be counteracted through constant technological innovation (Wendling 2009).

The analysis of MIT is not intended to imply criticism of the OCW team at MIT, who are, no doubt, working on the understanding that the initiative is a public good. In terms of creating socially useful wealth, it is indeed a public good. The suggestion here is to show how seemingly good and public initiatives such as OCW are subject to the structural discipline of capitalism and compound its social relations through the exploitation of labour and the valorization of the commodity form. The sustainability of such initiatives remains primarily dependent not on any measure of their contribution to the public good, but rather on their ability to attract the commodity of money by enhancing the reputation of the institution, recruiting staff and students, demonstrating efficiencies, furthering innovation, improving the student experience and supporting other institutional activities such as staff development and the quality assurance process (McGill *et al.* 2008). In the light of these institutional benefits, it is worth considering the Open Education movement's failure to provide an adequate critique of the institution as a form of company and regulator of wage-work, while it celebrates the expanding circulation of a form of institutional value.

The University as a Personified Subject

As Neocleous (2003) has shown, in modern capitalism, the worker is objectified, as the commodity of labour serves to transform the company into a personified subject, with greater rights and fewer responsibilities under the law than people themselves. As the neo-liberal university increasingly adopts corporate forms, objectives and practices, so the role of research and teaching is to improve the persona of the university. Like many other US universities, MIT awards tenure to a tiny handful of elite academics in their field (Lin 2010) thus rewarding, but also retaining through the incentive of tenure, staff who bring international prestige to MIT. The employment of prestigious researchers diverts effort and attention from individuals' achievements and reputations and focuses on the achievements of the institution. This is measured by its overall reputation, which is rewarded by increased government funding, commercial partnerships and philanthropic donations. This, in turn, attracts a greater number of better staff and

Towards Teaching in Public.indb 144 11/1/2011 2:23:48 PM

students, who join the university in order to enjoy the benefits of this reward. Yet, once absorbed into the labour process, these individuals serve the social character of the institution, which is constantly being monitored and evaluated through a system of league tables in which

> the process of personification of capital … is the flip side of a process in which human persons come to be treated as commodities – the worker, as human subject, sells labour as an object. As relations of production are reified so things are personified – human subjects become objects and objects become subjects – an irrational, 'bewitched, distorted and upside-down world' in which 'Monsieur le Capital' takes the form of a social character – a *dramatis personae* on the economic stage, no less. (Neocleous 2003: 159)

To what extent the Open Education movement can counteract this personification of educational institutions and the subtle objectification of their staff and students is still open to question. The overwhelming trend so far, however, is for OER to be seen as sustainable only to the extent that it can attract private and state funding which serves the reputational character of the respective universities. Yet, as Marx and more recently Postone (1993) have argued, the creation of this temporally determined form of value is achieved through the domination of people by time, structuring our lives and mediating our social relations. The increased use of technology is, and always has been, capitalism's principal technique of improving the input ratio of labour-power, measured by time, to the output of value, which is in itself temporal and therefore in constant need of expansion. And so the imperative of conjuring value out of labour continues upon its treadmill.

The Freedom of People, Not Things

Clarke maintains that

> [t]he working class is not simply the object of domination of the 'instrumental rationality' of capitalism. However alienated may be the forms of social labour under capitalism, the fact nevertheless remains that the creative powers of co-operative labour remain the only source of social wealth, and of the surplus value appropriated by the capitalist class. (Clarke 1991a: 327)

Education is at the heart of the contradiction of capitalist domination in that the working class, through its creative labour, is the sole source of wealth; capitalism must at the same time develop this creativity through education and restrain it through the discipline of wage labour. This contradiction is no less apparent in the Open Educational Resources movement as institutions and educators seek to demonstrate and sustain the value of their resources, and therefore the value of themselves. Furthermore, the state has assumed its role of promoting Open Education as a source of social wealth and institutional value. This has the additional effect of increasing the marketization of higher education by liberalizing the productive output of teaching staff and shaping the overall movement of Open Education into one that is tied to private and state funding and on-going institutional valorization processes. Through the useful sharing of knowledge, OER has the potential to be a source of social power, but remains constrained by the dominant structures of social wealth and complicit in the valorization process of teaching and learning.

This critical analysis presents the circulation of Open Educational Resources as a misguided concern for the freedom of things over the freedom of people, a concern that is based on a liberal view of economics, where value is attached to things rather than labour being understood as the actual source of value. Marx understood this important distinction and criticized 'the modern bagmen of free trade' (Marx 1976, 153) who see the exchange relation as the source of value, rather than the social relation of private property and wage labour (Marx 1976, Rubin 1979). Marx acknowledges the dual characteristics of the commodity being fundamentally an expression of the dual characteristics of labour and, in so doing, provides an emancipatory social theory that could lead to a really emancipatory social practice of Open Education (Clarke 1991a). If the emphasis of the Open Education movement can be moved away from the institutional processes of OER production and exchange towards a critique of research, teaching and learning as capitalist forms of labour, it might be possible to assert the movement as a critical form of social power rather than wealth.

Political action, including education, must therefore recognize that the potential to bring about such a change lies not in the freedom of things, but in the freedom of people from labour, capital's sole source of value and hence its contradiction. In this view, Open Education's revolutionary potential is in its as yet under-acknowledged re-conceptualization of what it means to work as a researcher, teacher and student. In this view, the project for Open Education is not the liberation of resources but the liberation of teachers from the work of teaching and the liberation of students from the

Towards Teaching in Public.indb 146 11/1/2011 2:23:48 PM

work of learning. Elsewhere, this has been more fully elaborated as a 'pedagogy of excess' (Neary and Hagyard 2010), where teachers and students develop an understanding of the present as history and so become more than their prescribed roles through a radical, self-reflexive, intellectual and practical process, which interrupts the logic of capitalism (Neary 2010, Neary and Hagyard 2010). As a social movement, the Open Education movement's contribution could be to re-conceive education not merely in yet another commodified form but in the production of knowledge at the level of society through the abolition of teaching and learning as commodified forms of labour that mediate social relations and dominate our lives.

References

Academic Earth (2011), Online courses from the world's top scholars, [online] www.academicearth.org (accessed 21 February 2011).

Allen, M. and Ainley, P. (2007), *Education Make You Fick, Innit – What's Gone Wrong in England's Schools, Colleges and Universities and How to Start Putting it Right*. London: Tufnell Press.

Alonso, C. S. (2003), 'European Union: the threat to education', *IV Online Magazine*, 35, 4 November, [online] www.internationalviewpoint.org/spip.php?rubrique16 (accessed 4 May 2011).

Amin, S. (2009), 'Seize the crisis!', *Monthly Review*, 61(7), pp. 1–16.

Archer, B. (2009), *Reaping the Whirlwind: The Financial Crisis and What it Means for the Labour Movement,* A Socialist Studies Pamphlet. London: Socialist Studies.

Arnold, M. (1853), *Poems*. London: Longmans.

Arnot, M. and Reay, D. (2007), 'A sociology of pedagogic voice: power, inequality and pupil consultation', *Discourse: Studies in the Cultural Politics of Education*, 28(3), pp. 311–25.

Arnstein, S. R. (1969), 'A ladder of citizen participation in the USA', *Journal of the American Institute of Planners*, 35(4), pp. 216–24.

Baggs, C. (2006), 'Radical reading? Working class libraries in the nineteenth and early twentieth centuries', in A. Black and P. Hoare (eds), *The Cambridge History of Libraries in Great Britain and Ireland*, Vol. III, 1850–2000. Cambridge: Cambridge University Press, pp. 169–79.

Ball, S. (1990), *Politics and Policy Making in Education: Explorations in Policy Sociology*. London and New York: Routledge.

—. (1994), *Education Reform: A Critical and Post-Structural Approach*. Buckingham and Philadelphia: Open University Press.

—. (2004), 'Education for sale! The commodification of everything', Department of Education and Professional Studies Annual Lecture, Institute of Education, London pp. 1–29.

—. (2006), *Education Policy and Social Class: The Selected Works of Stephen J. Ball*. London and New York: Routledge.

—. (2007), *Education Plc: Understanding Private Sector Participation in Public Sector Education*. Abingdon and New York: Routledge.

—. (2008), 'New philanthropy, new networks and new governance in education', *Political Studies*, 56(4), pp. 747–65.

Barnes, S. V. (1994), 'Crossing the invisible line: establishing co-education at the University of Manchester and Northwestern University', *History of Education*, 23(1), pp. 35–58.

Barnett, R. (2000), 'University knowledge in an age of supercomplexity', *Higher Education*, 40(4), pp. 409–22.

—. (2007), *A Will to Learn: Being a Student in an Age of Uncertainty*. Maidenhead: McGraw-Hill/Open University Press.

Becher, T. and Trowler, P. R. (2001), *Academic Tribes and Territories*, 2nd edn. Buckingham: SRHE and Open University Press.

Beckton, J. and Penney, E. (2011), 'Peer observation of on-line teaching in a distance learning environment', paper presented to the Blackboard Users' Group Conference, pp. 6–7 January 2011, Durham, [online] http://eprints.lincoln.ac.uk/3953/1/PeerObservationteaching.pdf (accessed 11 April 2011).

BECTA (2008), *Harnessing Technology: Next Generation Learning*, [online] www.dc10plus.net/resources/documents/Becta's_harnessing_technology08_summary.pdf (accessed 15 March 2011).

Bell, L., Stevenson, H. and Neary, M. (eds) (2009), *The Future of Higher Education: Policy, Pedagogy and the Student Experience*. London: Continuum Books.

Beloff, M. (1968), *The Plate Glass Universities*. London: Secker and Warburg.

Beresford, P. (2008), 'Service user values for social work and social care', in A. Barnard, N. Horner and J. Wild (eds), *The Value Base of Social Work and Social Care: An Active Learning Handbook*. Berkshire: McGrawHill and Open University Press, pp. 83–94.

Biggs, J. (2003), *Teaching for Quality Learning at University: What the Student Does*. Maidenhead: Society for Research into Higher Education and Open University Press.

Bijker, W. E. (1989), *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*. Cambridge, MA: MIT.

BIS (2010), *UK National Plan for Digital Participation*, [online] www.bis.gov.uk/assets/biscore/corporate/docs/p/plan-digital-participation.pdf (accessed 15 March 2011).

Black, A. (2006), 'The people's university: models of public library history', in A. Black and P. Hoare (eds), *The Cambridge History of Libraries in Great Britain and Ireland*, Vol. III, 1850–2000. Cambridge: Cambridge University Press, pp. 24–39.

Black, A. and Hoare, P. (eds) (2006), *The Cambridge History of Libraries in Great Britain and Ireland*, Vol. III, 1850–2000. Cambridge: Cambridge University Press.

Blackmore, P. and Cousin, G. (2003), 'Linking teaching and research through research-based learning', *Educational Developments*, 4(4), pp. 24–7.

Boggs, A. (2010), 'Understanding the origins and state of play in UK university governance', *The New Collection*, 5, pp. 1–8.

Boldyreff, C., Capiluppi, A., Knowles T. and Munro, J. (2009), 'Undergraduate research opportunities in OSS', in C. Boldyreff, K. Crowston, B. Lundell and A. Wasserman (eds), *Open Source Ecosystems: Diverse Communities Interacting*. Berlin: Springer, pp. 340–50.

Bonefeld, W. (1997), 'Notes on anti-semitism', *Common Sense*, 21, pp. 60–76.

Bonefeld, W. and Holloway, J. (1991), *Post Fordism and Social Form: A Marxist Debate on the Post-Fordist State (Capital and Class)*. Basingstoke: Palgrave Macmillan.

Bonefeld, W., Gunn, R. and Psychopedis, K. (eds) (1992), *Open Marxism: Dialectics and History*, Vol. 1. London: Pluto Press.

Towards Teaching in Public.indb 166 11/1/2011 2:23:49 PM

Boud, D. (1999), 'Situating academic development in professional work: using peer learning', *International Journal of Academic Development*, 4, pp. 3–10.

Bovill, C. (2009), 'Students as co-creators of curricula: changing the relationship between tutor and student in higher education', in iPED Research Network (eds), *4th International Conference iPED2009: Proceedings Researching Beyond Boundaries: Academic Communities without Borders*, pp. 14–15 September 2009. Coventry: Coventry University, pp. 130–31.

Bowe, R., Ball, S. and Gold, A. (1992), *Reforming Education and Changing Schools: Case Studies in Policy Sociology*. London and New York: Routledge.

Boyer Commission (1998), *Reinventing Undergraduate Education: A Blueprint for America's Research Universities*. Stony Brook, NY: Carnegie Foundation for the Advancement of Teaching.

Boyer, E. L. (1990), *Scholarship Reconsidered: Priorities for the Professoriate*. Princeton, NJ: Carnegie Foundation for the Advancement of Teaching.

Boyer, R. (1990), *The Regulation School: A Critical Introduction*. New York: Columbia University Press.

Boyle, J. (2008), *The Public Domain: Enclosing the Commons of the Mind*. New Haven and London: Yale University Press.

BPP Holdings (2011), [online] www.bpp.com (accessed 25 May 2011).

Brenner, R. and Probsting, M. (2008), *The Credit Crunch: A Marxist Analysis*. London: The League for the Fifth International.

Briggs, A. and Macartney, A. (1984), *Toynbee Hall. The First Hundred Years*. London: Routledge and Kegan Paul.

Broers, A. (2005), 'University courses for tomorrow', third annual Higher Education Policy Institute lecture, Royal Institution, London, 24 November, [online] www.hepi.ac.uk/483-1202/Third-HEPI-Annual-Lecture.html (accessed 27 April 2011).

Brookfield, S. (1995), *Becoming a Critically Reflective Teacher*. San Francisco, CA: Jossey Bass.

Brown, H. and Barrett, S. (2008), 'Practice with service-users, carers and their communities', in S. Fraser and S. Matthews (eds), *The Critical Practitioner in Social Work and Health Care*. London: Sage Publications, pp. 43–59.

Brown, P., Halsey, A., Lauder, H. and Wells, A. (1997), 'The transformation of education and society: an introduction', in A. Halsey, H. Lauder, P. Brown and A. Wells (eds), *Education: Culture, Economy and Society*. Oxford: Oxford University Press, pp. 1–44.

Browne, J. (2010), *Securing a Sustainable Future for Higher Education. An Independent Review of Higher Education Funding and Student Finance* (The Browne Report), [online] http://hereview.independent.gov.uk/hereview/report (accessed 15 March 2011).

Buller, W. (2008), 'Learning from e-business', in J. Boys and P. Ford (eds), *The e-Revolution and Post-Compulsory Education*. Abingdon: Routledge, pp. 33–48.

Burawoy, M. (2004), 'Public Sociologies: Contradictions, Dilemmas, and Possibilities', *Social Forces*, 82(4), pp. 1603–18.

—. (2005a), 'The Critical Turn to Public Sociology' *Critical Sociology*, 31(3), pp. 313–26, [online] http://burawoy.berkeley.edu/PS/Critical%20Sociology/The%20Critical%20Turn%20to%20Public%20Sociology.pdf (accessed 4 May 2011).

—. (2005b), 'For public sociology', *American Sociological Review*, 70(1), pp. 4–28.
—. (2007), 'For public sociology', in D. Clawson, R. Zussman, J. Misra, N. Gerstel, R. Stokes, D. L. Anderton and M. Burawoy (eds), Public Sociology: Fifteen Eminent Sociologists Debate Politics and the Profession in the Twenty-First Century. Berkeley, CA: University of California Press, pp. 23–66.
Calhoun, C. (ed.) (1992), *Habermas and the Public Sphere*. Cambridge, MA: MIT Press.
Callinicos, A. (2006), *Universities in a Neo-Liberal World*. London: Bookmark Publications.
Capiluppi, A. and Knowles T. (2008), 'Maintenance and evolution of free/libre/open source software', paper presented to the *International Conference on Software Maintenance*, 28 September to 4 October, Beijing.
Chamberlin, R. (1996), *Survival: The Rise, Fall and Rise of the Guildford Institute of the University of Surrey*. Godalming: Piton Publishing House Ltd.
Charnley, H., Roddam, G. and Wistow, J. (2009), 'Working with service users and carers', in R. Adams, L. Dominelli and M. Payne (eds), *Social Work: Themes, Issues and Critical Debates*, 3rd edn. Basingstoke: Palgrave Macmillan, pp. 193–208.
Clarke, S. (1991a), *Marx, Marginalism and Modern Sociology*, 2nd edn. Baskingstoke: Macmillan.
—. (1991b), 'The state debate', in S. Clarke (ed.), *The State Debate*. Basingstoke: Macmillan, pp. 1–61.
Clegg, S. (2009), 'Forms of knowing and academic development practice', *Studies in Higher Education*, 34(4), pp. 403–16.
Cohen, S. A. and MacVicar, M. L. A. (1976), 'Establishing an undergraduate research program in physics: how it was done', *American Journal of Physics*, 44(3), pp. 199–203.
Coleman, J. (1997), 'Social capital in the creation of human capital', in A. Halsey, H. Lauder, P. Brown and A. Wells (eds), *Education: Culture, Economy and Society*. Oxford: Oxford University Press, pp. 80–95.
Coles, J. (2003), Review of *A Ministry of Enthusiasm: Centenary Essays on the Workers' Educational Association* (review number 356), [online] www.history.ac.uk/reviews/review/356 (accessed 27 April 2011).
Committee on Higher Education (1963), *Higher Education Report of the Committee Appointed by the Prime Minister under the Chairmanship of Lord Robbins 1961–1963* (The Robbins Report). London: HMSO Cmnd 2154.
Cook-Sather, A. (2002), 'Authorizing students' perspectives: toward trust, dialogue, and change in education', *Educational Researcher*, 31(4), pp. 3–14.
—. (2008), ' "What you get is looking in a mirror, only better": inviting students to reflect (on) college teaching', *Reflective Practice*, 9(4), pp. 473–83.
—. (2009), 'From traditional accountability to shared responsibility: the benefits and challenges of student consultants gathering midcourse feedback in college classrooms', *Assessment and Evaluation in Higher Education*, 34(2), pp. 231–41.
Cornford, J. and Pollock, N. (2003), *Putting the University Online: Information Technology and Organisational Change*. Buckingham: SRHE and Open University Press.
Cosh, J. (1999), 'Peer observation: a reflective model', *ELT Journal*, 53(1), pp. 22–7.

Cousin, G. (2008), 'New forms of transactional curriculum inquiry', in R. Land, J. H.F. Meyer and J. Smith (eds), *Threshold Concepts in the Disciplines*. Rotterdam and Taipei: Sense Publications, pp. 261–72.

—. (2010). 'Neither teacher-centred nor student-centred: threshold concepts and research partnerships', *Journal of Learning Development in Higher Education*, 2.

Crawford, K. (2009), 'Continuing professional development in higher education: tensions and debates in a changing environment', in L. Bell., H. Stevenson and M. Neary (eds), *The Future of Higher Education: Policy, Pedagogy and the Student Experience*. London: Continuum Books, pp. 69–82.

Creative Commons (2011), 'About', [online] http://creativecommons.org/about (accessed 30 March 2011).

Creighton, M. (1902), *Thoughts on Education*. London: Longmans, Green, and Co.

CTOED (Cape Town Open Education Declaration) (2007), [online] www.capetowndeclaration.org (accessed 1 March 2011).

CUNY (2011), 'CUNY Academic Commons', [online] http://commons.gc.cuny.edu (accessed 30 March 2011).

d'Oliveira, C. and Lerman, S. (2009), 'OpenCourseWare: Working Through Financial Challenges', *MIT Faculty Newsletter*, 22(1), September/October, [online] http://web.mit.edu/fnl/volume/221/d%27oliveira_lerman.html (accessed 1st March 2011).

De Angelis, M. and Harvie, D. (2009), ' "Cognitive capitalism" and the rat race: how capital measures immaterial labour in British universities', *Historical Materialism*, 17(3), pp. 3–30.

Deal, M. (2007), 'Aversive disablism: subtle prejudice towards disabled people', *Disability & Society*, 22(1), pp. 93–107.

Deem, R. (1998), ' "New Managerialism" and higher education: the management of performances and cultures in universities in the United Kingdom', *International Studies in Sociology of Education*, 8(1), pp. 47–70.

—. (2001), 'Globalisation, new managerialism, academic capitalism and entrepreneurialism in universities: is the local dimension still important?', *Comparative Education*, 37(1), pp. 7–20.

Deem, R., Hillyard, S. and Reed, M. (2007), *Knowledge, Education and New Managerialism*. Oxford: Oxford University Press.

—. (2008), *Knowledge, Higher Education, and the New Managerialism: The Changing Management of UK Universities*. Oxford: Open University Press.

Delanty, G. (1998), 'The idea of the university in the global era: from knowledge as an end to the end of knowledge?' *Social Epistemology*, 12(1), pp. 3–25.

—. (2001), *Challenging Knowledge: The University in the Knowledge Society*. Buckingham: SRHE and Open University Press.

—. (2003), 'Ideologies of the knowledge society and the cultural contradictions of higher education', *Policy Futures in Education*, 1(1), pp. 71–82.

DEMOS (2009), *The Edgeless University*, [online] www.demos.co.uk/publications/the-edgeless-university (accessed 11 October 2010).

DES (Department of Education and Science) (1988), *Education Reform Act*. London: HMSO.

—. (1992), *Further and Higher Education Act*. London: HMSO.

DfEE (Department for Education and Employment) (1995), *Disability Discrimination Act*. London: HMSO.

—. (1998), *The Learning Age*. London: HMSO.

—. (2001), *Special Educational Needs Disability Act* (SENDA). London: HMSO.

DfES (Department for Education and Skills) (2003), *The Future of Higher Education*. Norwich: The Stationery Office.

Digby, A. and Searby, P. (1981), *Children, School and Society in Nineteenth-Century England*. London: Macmillan.

Dinerstein, A. and Neary, M. (eds) (2002), *The Labour Debate: An Investigation into the Theory and Reality of Capitalist Work*. London and New York: Ashgate.

DWP (Department of Work and Pensions) (2010), *Single Equality Act*. Norwich: The Stationery Office.

Eastwood, D. (2009), *Introduction to Urban Regeneration: Making a Difference*. Newcastle upon, Tyne: HEFCE, Northumbria University.

Education for Change Ltd, The Research Partnership and Social Informatics Research Unit, University of Birmingham (2005), *Study of Environments to Support E-Learning in UK Further and Higher Education*. London: JISC.

Edwards, C. (2011), 'Investigation of the relevance of the notion of a threshold concept within generic learning development work', *Journal of Learning Development in Higher Education*, 3.

Elliott, L. and Atkinson, D. (2008), *The Gods That Failed: How Blind Faith in Markets Has Cost Us Our Future*. London: Bodley Head.

Elton, L. (2005). 'Scholarship and the research and teaching nexus', in R. Barnett (ed.), *Reshaping the University: New Relationships between Research, Scholarship and Teaching*. Maidenhead: McGraw-Hill/Open University Press.

Epstein, D. and Boden, R. (2006), 'Managing the research imagination? Globalisation and research in higher education', *Globalisation, Societies and Education*, 4(2), pp. 223–36.

Evans, M. (2004), *Killing Thinking: The Death of Universities*. London: Continuum Books.

Fanghanel, J. and Trowler, P. (2008), 'Exploring academic identities and practices in a competitive enhancement context: a UK-based case study', *European Journal of Education*, 43(3), pp. 301–13.

Fejes, A. (2005), 'The Bologna process – governing higher education in Europe through standardisation', paper presented to the third conference on *Knowledge and Politics: The Bologna Process and the Shaping of the Future Knowledge Societies*, University of Bergen, May pp. 18–20.

Field, J. (2002), 'Governing the ungovernable: why lifelong learning policies promise so much yet deliver so little', in R. Edwards, N. Miller, N. Small and A. Tait (eds), *Supporting Lifelong Learning, Vol. 3: Making Policy Work*. London: Routledge, pp. 201–16.

Fielding, M. (2001), 'Students as radical agents of change', *Journal of Educational Change*, 2(2), pp. 123–41.

Finlayson, G. and Hayward, D. (2010), 'Education towards hetereonomy: a critical analysis of the reform of UK universities since 1978', [online] www.sussex.ac.uk/Users/jgf21/eth final version.pdf (accessed 18 October 2010).

Fitch, J. G. (1883), *Lectures on Teaching*. Cambridge: Cambridge University Press.

Towards Teaching in Public.indb 170 11/1/2011 2:23:49 PM

Ford, P., Goodyear, P., Heseltine, R., Lewis, R., Darby, J., Graves, J., Satorius, P., Harwood, D. and King, T. (1996), *Managing Change in Higher Education: A Learning Environment Architecture*. Buckingham: Open University Press.

Forster, G. and Bell, A. (2006), 'The subscription libraries and their members', in A. Black and P. Hoare (eds), *The Cambridge History of Libraries in Great Britain and Ireland*, Vol. III, 1850–2000. Cambridge: Cambridge University Press, pp. 147–68.

Foster, J. B. and Magdoff, F. (2009), *The Great Financial Crisis: Causes and Consequences*. New York: Monthly Review Press.

Foucault, M. (1980), *Power/Knowledge. Selected Interviews and Other Writings 1972–1977*. Brighton: Harvester Press.

—. (1988), *Madness and Civilization: A History of Insanity in the Age of Reason*. New York: Vintage.

Freire, P. (1972), *Pedagogy of the Oppressed*. Harmondsworth: Penguin.

Freisen, N. (2003), 'Three objections to learning objects and e-learning standards', [online] http://learningspaces.org/n/papers/objections.html (accessed 1 March 2011).

Fuller, S. (2001), *Knowledge Management Foundations*. Boston, Oxford and New Dehli: KMCI Press.

Fuller, T. (1989), *The Voice of Liberal Learning: Michael Oakeshott on Education*. Yale: Yale University Press.

Fulton, O. (1981), *Access to Higher Education*. Guildford: Society for Research into Higher Education.

Gamble, A. (2009), The *Spectre at the Feast: Capitalist Crisis and the Politics of Recession*. Basingstoke and New York: Palgrave Macmillan.

Gardner, P. (2007), 'Literacy, learning and education', in C. Williams (ed.), *A Companion to Nineteenth-Century Britain*. Oxford: Blackwell Publishing, The Historical Association, pp. 353–68.

Gewirtz, S., Ball, S. and Bowe, R. (1995), *Markets, Choice and Equity in Education*. Buckingham and Philadelphia: Open University Press.

Gill, A. M. (1968), 'The Leicester school board', in B. Simon (ed.), *Education in Leicestershire, 1540–1940*. Leicester: Leicester University Press.

Goldman, L. (1995), *Dons and Workers: Oxford and Adult Education Since 1850*. Oxford: Clarendon Press.

—. (2003), 'The first students in the WEA: individual enlightenment and collective advance', in R. Roberts (ed.), *A Ministry of Enthusiasm: Centenary Essays on the Workers' Educational Association*, London: Pluto Press.

Gombrich, R. (2000), 'British higher education in the last twenty years: the murder of a profession', lecture given to the Graduate Institute of Policy Studies, Tokyo, 7 January.

Goodman, J. and Grosvenor, I. (2009), 'Educational research – history of education a curious case?', *Oxford Review of Education*, 35(5), pp. 601–16.

Gosling, D. (2005), *Peer Observation of Teaching*, SEDA paper 128. Birmingham: SEDA.

Gosling, D. and Mason O'Connor, K. (eds) (2009), *Beyond the Peer Observation of Teaching*, SEDA paper 124. London: SEDA.

Gramsci, A. (1971), *Selections from the Prison Notebooks*. London: Lawrence and Wishart.

Groom, J. and Lamb, B. (2010), 'Never mind the Edupunks or, the Great Word Count Swindle', *Educause Review*, 45(4), pp. 50–8.

Groom, M. and Brockhaus, A. (2008), 'Using Wikipedia to Re-envision the Term Paper', [online] www.educause.edu/node/162770 (accessed 21 July 2010).

Hagyard, A. (2009), 'Student intelligence: challenging received wisdom in student surveys', in L. Bell., H. Stevenson and M. Neary (eds), *The Future of Higher Education: Policy, Pedagogy and the Student Experience*. London: Continuum Books, pp. 112–25.

Halsey, A. (1997), 'Trends in access and equity in higher education: Britain in international perspective', in A. Halsey, H. Lauder, P. Brown, and A. Wells (eds), *Education: Culture, Economy and Society*. Oxford: Oxford University Press, pp. 638–45.

—. (2006), 'The European University', in H. Lauder, P. Brown, J. Dillabough and A. Halsey (eds), *Education, Globalization and Social Change*. Oxford: Oxford University Press, pp, pp. 854–65.

Halsey, A., Lauder, H., Brown, P. and Wells, A. (eds) (1997), *Education: Culture, Economy and Society*. Oxford: Oxford University Press.

Hammersley-Fletcher, L. and Orsmond, P. (2004), 'Evaluating our peers: is peer observation a meaningful process?', *Studies in Higher Education*, 29(4), pp. 489–503.

—. (2005), 'Reflecting on reflective practices within peer observation', *Studies in Higher Education*, 30(2), pp. 213–24.

Haraway, D. (1991), *Simians, Cyborgs and Women: The Reinvention of Nature*. London: Free Association Books.

Harrison, J. F. C. (1961), *Learning and Living, 1790–1960*. London: Routledge and Kegan Paul.

—. (1971), *Underground Education in the Nineteenth Century*, Mansbridge Memorial Lecture. Leeds: Leeds University Press.

Harvey, L. (2004), 'The power of accreditation: views of academics', *Journal of Higher Education Policy and Management*, 26(2), pp. 207–23.

Harvey, L. and Green, D. (1993), 'Defining quality', *Assessment and Evaluation in Higher Education*, 18(1), pp. 9–34.

Hattie, J. and Marsh, H. (1996), 'The relationship between research and teaching: a meta-analysis', *Review of Educational Research*, 66(4), pp. 507–42.

HEA (Higher Education Academy) (2006), 'The UK professional standards framework for teaching and supporting learning in higher education', [online] www.heacademy.ac.uk/assets/York/documents/ourwork/rewardandrecog/ProfessionalStandardsFramework.pdf (accessed 15 March 2011).

Healey, M. and Jenkins, A. (2009), *Developing Undergraduate Research and Inquiry*. York: Higher Education Academy.

Heaton-Shrestha, C., Gipps, C., Edirisingha, P. and Linsey, T. (2007), 'Learning and e-learning in HE: the relationship between student learning style and VLE use', *Research Papers in Education*, 22(4), pp. 443–64.

HEFCE (Higher Education Funding Council for England) (2005), *Strategy for e-Learning*. [online] www.hefce.ac.uk/pubs/hefce/2005/05_12 (accessed 16 March 2011).

—. (2006a), 'Higher Education Funding Council for England. A brief history', [online] www.hefce.ac.uk/aboutus/history/history.htm (accessed 10 February 2011).
—. (2006b), 'Widening particpation', [online] www.hefce.ac.uk/widen (accessed 11 February 2011).
—. (2006c), *Teaching Quality Enhancement Fund: Funding Arrangements 2006–07 to 2008–09*, [online] www.hefce.ac.uk/pubs/hefce/2006/06_11 (accessed 6 March 2011).
—. (2009a), *Enhancing Teaching and Learning Through the Use of Technology*, [online] www.hefce.ac.uk/pubs/hefce/2005/05_12 (accessed 25 March 2011).
—. (2009b), 'Teaching Quality Enhancement Fund (TQEF)', [online] www.hefce.ac.uk/learning/enhance/tqef.asp (accessed 25 May 2011).
Hewitt, M. (2006), 'Extending the public library 1850–1930', in A. Black and P. Hoare (eds), *The Cambridge History of Libraries in Great Britain and Ireland*, Vol. III, 1850–2000. Cambridge: Cambridge University Press, pp. 72–81.
Hoare, P. (2003), 'The operatives' libraries of Nottingham: a radical community's own initiative', *Library History*, 19, pp. 173–84.
—. (2006), 'The libraries of the ancient universities to the 1960s', in A. Black and P. Hoare (eds), *The Cambridge History of Libraries in Great Britain and Ireland*, Vol. III, 1850–2000. Cambridge: Cambridge University Press, pp. 321–56.
—. (2010), 'Evidence from Thomas Greenwood's *British Library Year Book, 1900–1901*', pers. comm., 31 August 2010.
Holloway, J. (2005), *Change the World Without Taking Power*. Ann Arbor, MI: Pluto Press.
Holloway, J. and Picciotto, S. (1991), 'Capital, Crisis and the State', in S. Clarke (ed.), *The State Debate*. London: Macmillan, pp. 109–41.
Home Office (1998), *Data Protection Act 1998*. London: HMSO.
Huber, V. A. (1843), *The English Universities*, Vol. II, Part I. London: William Pickering.
Hughes, A. (2009), *Higher Education in a Web 2.0 World*. London: Committee of Inquiry into the Changing Learner Experience.
Humboldt, W. von (1970), 'On the spirit and organisational framework of intellectual institutions in Berlin', *Minerva*, 8, pp. 242–67.
Hunter, A-B., Laursen, S. L. and Seymour, E. (2007), 'Becoming a scientist: the role of undergraduate research in students' cognitive, personal, and professional development', *Science Education*, 91(1), pp. 36–74.
Hunter, S. and Ritchie, P. (2007), 'Introduction – with, not to: models of co-production in social welfare', in S. Hunter and P. Ritchie (eds), *Co-Production and Personalisation in Social Care: Changing Relationships in the Provision of Social Care*. London: Jessica Kingsley, pp. 9–18.
Inkster, I. (1976), 'The social context of an educational movement: a revisionist approach to the English Mechanics' Institutes, 1820–1850', *Oxford Review of Education*, 2(3), pp. 277–307.
Innes, J. (2006), 'Libraries in context: social, cultural and intellectual background', in G. Mandelbrote and K. A. Manley (eds), *The Cambridge History of Libraries in Britain and Ireland*, Vol. II 1640–1850. Cambridge: Cambridge University Press, pp. 285–300.

iParadigms LLC (2010), 'Company questions and answers', [online] http://turnitin.com/resources/documentation/turnitin/sales/turnitin_qa.pdf (accessed 9 December 2010).

iTunes University (2011), [online] www.apple.com/education/itunes-u (accessed 21 February 2011).

Jarratt, A. (1985), *Report of the Steering Committee for Efficiency Studies in Universities*. London: CVCP.

Jenkins, A. (2004), *A Guide to the Research Evidence on Teaching-Research Relations*. York: Higher Education Academy.

Jenkins, A. and Healey, M. (2005), *Institutional Strategies to Link Teaching and Research*. York: Higher Education Academy.

Jenkins, A., Healey, M. and Zetter, R. (2007), *Linking Teaching and Research in Departments and Disciplines*. York: Higher Education Academy.

Jepson, N. A. (1973), *The Beginnings of English University Adult Education – Policy and Problems. A Critical Study of the Early Cambridge and Oxford University Extension Lecture Movements between 1873 and 1907*. London: Michael Joseph.

Jessop, B. (2002), *The Future of the Capitalist State*. Cambridge: Polity Press.

—. (2008), 'A cultural political economy of competitiveness and its implications for higher education', in B. Jessop, N. Fairclough and R. Wodak (eds), *Education and the Knowledge-Based Economy in Europe*. Rotterdam and Tapei: Sense.

Jewell, E. and Brew, M. (2010), *Undergraduate Research Experience Programs in Australian* Universities, [online] www.mq.edu.au/ltc/altc/ug_research/files/Brew_MQFellowship_UGprograms_report2010.pdf (accessed 6 March 2011).

JISC (2008), *Great Expectations of ICT: How Higher Education Institutions are Measuring Up*, [online] www.jisc.ac.uk/publications/research/2008/greatexpectations.aspx (accessed 16 March 2011).

—. (2009a), *CIBER Report - Information Behaviour of the Researcher of the Future*, [online] www.jisc.ac.uk/media/documents/programmes/reppres/gg_final_keynote_11012008.pdf (accessed 25 March 2011).

—. (2009b), 'Open educational resources programme - phase 1', [online] www.jisc.ac.uk/ /link.aspx?_id=FC3EA2576C484B99A47DD4AFE925D900&_z=z (accessed 11 October 2010).

—. (2010), 'Open educational resources programme – phase 2', [online] www.jisc.ac.uk/oer (accessed 11 October 2010).

Jones, D. (1977), *The Making of the Educational System, 1851–81*. London: Routledge and Kegan Paul.

Jones, S. E. (2006), *Against Technology: From the Luddites to Neo-Luddism*. London: Routledge.

Kay, G. and Mott, J. (1982), *Political Order and the Law of Labour*. London: Macmillan.

Kell, C. and Annetts, S. (2009), 'Peer review of teaching: embedded practice or policy-holding complancency?', *Innovations in Education and Teaching International*, 46(1), pp. 61–70.

Kelly, T. (1992), *A History of Adult Education in Great Britain*, 3rd edn. Liverpool: Liverpool University Press.

Kogan, M. (1975), *Educational Policy-Making: A Study of Interest Groups and Parliament*. London: George Allen and Unwin Ltd.

Kreisberg, S. (1992), *Transforming Power: Domination, Empowerment and Education*. Albany, NY: University of New York Press.

Kuhn, T. (1962), *The Structure of Scientific Revolutions*. Chicago: Chicago University Press.

Lambert, R. (2003), *Lambert Review of Business-University Collaboration: Final Report*. Norwich: HMSO, [online] www.eua.be/eua/jsp/en/upload/lambert_review_final_450.1151581102387.pdf (accessed 4 May 2011).

Lammy, D. (2009), 'The Edgeless University', [online] http://webarchive.nationalarchives.gov.uk/+/http://www.dius.gov.uk/news_and_speeches/speeches/david_lammy/edgeless_university (accessed 11 October 2010).

Laurent, J. (1984), 'Science, society and politics in late nineteenth century England: a further look at Mechanics' Institutes', *Social Studies of Science*, 14(4), pp. 585–619.

Laurillard, D. (2002), *Rethinking University Teaching: A Conversational Framework for the Effective Use of Learning Technologies*. London: Routledge Falmer.

Leadbeater, C. (2000), *Living on Thin Air*. London: Penguin.

Lesnick, A. and Cook-Sather, A. (2010), 'Building civic capacity on campus through a radically inclusive teaching and learning initiative', *Innovative Higher Education*, 35(1), pp. 3–17.

Lessig, L. (2004), *Free Culture: How Big Media Uses Technology and the Law to Lock Down Culture and Control Creativity*. New York, NY: Penguin Press.

Levidow, L. (2002), 'Marketising higher education: neo-liberal strategies and counter strategies', in K. Robins and F. Webster (eds), *The Virtual University? Knowledge, Markets and Management*. Oxford: Oxford University Press, pp. 247–48.

Levy, P. (2008), ' "I feel like a grown up person": first year undergraduates' experiences of inquiry and research,' paper presented to CILASS Third Monday Research Seminar Series, University of Sheffield, 17 November, [online] www.slideshare.net/cilass.slideshare/third-mondays-research-seminars-philippa-levy-november-2008-presentation (accessed 6 March 2011).

Lin, J. (2010), 'Unraveling tenure at MIT', *The Tech*, 130(28), [online] http://tech.mit.edu/V130/N28/tenure.html (accessed 1 March 2011).

LJMU (2010), 'A brief history of LJMU', [online] www.ljmu.ac.uk/AboutUs_City/history.htm (accessed 11 March 2011).

Lock, G. and Lorenz, C. (2007), 'Revisiting the University Front', *Studies in the Philosophy of Education*, 26(5), pp. 405–18.

London Edinburgh Weekend Return Group (1980), *In and Against the State*. London: Pluto Press.

London University (2008), 'University of London external system – 150th', [online] www.londonexternal.ac.uk/150/index.shtml (accessed 27 April 2011).

—. (2010), 'Our history', [online] www.londoninternational.ac.uk/about_us/history.shtml (accessed 27 April 2011).

Lyotard, J.-F. (2005), *The Postmodern Condition: A Report on Knowledge*. Manchester: Manchester University Press.

Mandelbrote, G. and Manley, K. A. (eds) (2006), *The Cambridge History of Libraries in Britain and Ireland*, Vol.II 1640–1850. Cambridge: Cambridge University Press.

Mansbridge, A. (1920), *An Adventure in Working Class Education. Being the Study of the Workers' Educational Association, 1903–1915*. London: Longmans Green and Co.

Marks, A. (2005), 'Changing spatial and synchronous structures in the history and culture of learning', *Higher Education*, 50(4), pp. 613–30.
Marx, K. (1888), *Manifesto of the Communist Party*. London: W. Reeves.
—. (1976), *Capital*, Vol 1. Harmondsworth: Penguin.
—. (2005), *Grundrisse: Foundations of the Critique of Political Economy*, trans. M. Nicolaus, London and New York: Penguin Classics.
Mary Washington University (2011), 'UMW blogs', [online] http://umwblogs.org (accessed 30 March 2011).
McCord, N. and Purdue, B. (2007), *British History, 1815–1914*. Oxford: Oxford University Press.
McCulloch, A. (2009), 'The student as co-producer: learning from public administration about the student-university relationship', *Studies in Higher Education* 34(2), pp. 171–83.
McCulloch, G. (2010), 'A people's history of education: Brian Simon, the British Communist Party and *Studies in the History of Education 1780–1870*', *History of Education*, 39(4), pp. 437–57.
McGill, L. and Currier, S. and Duncan, C. and Douglas, P. (2008), 'Good intentions: improving the evidence base in support of sharing learning materials', [online] http://ie-repository.jisc.ac.uk/265 (accessed 1 March 2011).
McKibbin, R. (2006), 'The destruction of the public sphere: Brown v. Cameron', *London Review of Books*, 28(1), pp. 3–6.
McLean, M. (2006), *Pedagogy and the University: Critical Theory and Practice* (hardback). London: Continuum Books.
—. (2008), *Pedagogy and the University: Critical Theory and Practice* (paperback). London: Continuum Books.
McQuillan, M. (2010), 'False Economy', [online] www.thelondongraduateschool.co.uk/wp-content/uploads/2010/11/False_Economy1.pdf (accessed 4 May 2011).
McSherry, C. (2001), *Who Owns Academic Work? Battling for Control of Intellectual Property*. Cambridge, MA: Harvard University Press.
McWilliam, E. (2002), 'Against professional development', *Educational Philosophy and Theory*, 34(3), pp. 289–99.
Meacham, S. (1987), *Toynbee Hall and Social Reform 1880–1914*. New Haven: Yale University Press.
Meiksins, W. E. (1998), *The Retreat from Class: A New 'True' Socialism*. London and New York: Verso Classics.
—. (2002), *The Origins of Capitalism: Aa Longer View*. London and New York: Verso.
Mill, J. S. (1970), *Principles of Political Economy with Some of Their Applications to Social Philosophy*, Books iv and v. Harmondsworth: Penguin Classics.
MIT (2011a), 'MIT OpenCourseWare celebrates 10th anniversary', [online] http://ocw.mit.edu/about/media-coverage/press-releases/tenth-anniversary (accessed 1 March 2011).
—. (2011b), 'The next decade of open sharing: reaching one billion minds', [online] http://ocw.mit.edu/about/next-decade/initiatives (accessed 1 March 2011).
Morgan, J. (2010), 'Universities are blind to open-learning train set to smash up their models', *Times Higher Education Supplement*, 23 September 2001.
Morley, L. (2003), *Quality and Power in Higher Education*. Maidenhead: SHRE/OUP.

Towards Teaching in Public.indb 176 11/1/2011 2:23:50 PM

Morris, A. and Saunders, G. (2009), 'University of Lincoln peer observation of teaching scheme: review and evaluation', unpublished internal report, Centre for Educational Research and Development, University of Lincoln.

Mullaly, B. (2002), *Challenging Oppression: A Critical Social Work Approach*. London: Jessica Kingsley.

Munby, Z. (2003), 'Women's involvement in the WEA and women's education', in S. K. Roberts (ed.), *A Ministry of Enthusiasm: Centenary Essays on the Workers' Educational Association*. London: Pluto Press, pp. 215–37.

Naidoo, R. (2003), 'Repositioning higher education as a global commodity: opportunities and challenges for future sociology of education work', *British Journal of Sociology of Education*, 24(2), pp. 249–59.

Naidoo, R. and Jamieson, I. (2006), 'Empowering Participants or Corroding Learning? Towards a Research Agenda on the Impact of Student Consumerism in Higher Education', in H. Lauder, P. Brown, J. Dillabough and A. Halsey (eds), *Education, Globalization and Social Change*. Oxford: Oxford University Press, pp. 875–84.

NCIHE (National Committee of Inquiry into Higher Education) (1997), *Higher Education in the Learning Society. Report of the National Committee of Inquiry into Higher Education* (The Dearing Report). London: HMSO.

Neary, M. (2010), 'Student as producer: a pedagogy for the avant-garde; or, how do revolutionary teachers teach?', *Learning Exchange*, 1(1).

Neary, M. and Hagyard, A. (2010), 'Pedagogy of excess: an alternative political economy of student life', in M. Molesworth, R. Scullion and E. Nixon (eds), *The Marketisation of Higher Education and the Student as Consumer*. London: Routledge.

Neary, M. and Taylor, G. (1998), *Money and the Human Condition*. Basingstoke: Macmillan.

Neary, M. and Winn, J. (2009), 'The student as producer: reinventing the student experience in higher education', in L. Bell, H. Stevenson and M. Neary (eds), *The Future of Higher Education: Policy, Pedagogy and the Student Experience*. London: Continuum Books, pp. 126–38.

Neary, M., Harrison, A., Saunders, G., Parekh, N., Crellin, G. and Austin, S. (2010), *Learning Landscapes in Higher Education*. Lincoln: Centre for Education Research and Development, University of Lincoln.

Negri, A. (1984), *Marx Beyond Marx*. Massachusetts: Bergin and Garvey.

Nelson, C. and Watt, S. (2004), *Office Hours: Activism and Change in the Academy*. London: Taylor & Francis Ltd.

Neocleous, M. (2003), 'Staging power: Marx, Hobbes and the personification of capital', *Law and Critique*, 14(2), pp. 147–65.

Nixon, J. (2011), *Higher Education and the Public Good: Imagining the University*. London and New York: Continuum Books.

Noble, D. (1998), 'Digital diploma mill', *First Monday*, 3(1), [online] http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/569/490 (accessed 1 March 2011).

Noble, D. F. (2001), *Digital Diploma Mills: The Automation of Higher Education*. Delhi: Aakar Books.

Oakeshott, M. (1989), 'Education: The Engagement and its Frustration', in T. Fuller (ed.), *The Voice of Liberal Learning: Michael Oakeshott on Education*. New Haven: Yale University Press, pp. 90–1.

Oliver, M. (2009), *Understanding Disability. From Theory to Practice*, 2nd edn. London: Palgrave Macmillan.

O'Neill, O. S. (2002), 'A question of trust', Reith Lecture, *BBC Radio*, 4, 3 April to 1 May), [online] www.bbc.co.uk/radio4/reith2002 (accessed 9 September 2010).

Open University (2011), 'About the OU', [online] www8.open.ac.uk/about/main/the-ou-explained (accessed 10 March 2011).

Pashley, B. W. (1968), *University Extension Reconsidered*. Leicester: University of Leicester, Department of Adult Education.

Peel, D. (2005), 'Peer observation as a transformatory tool?' *Teaching in Higher Education*, 10(4), pp. 489–504.

Pesch, U. (2006), *The Predicament of Publicness*. Delft: Eburon Academic Publishers.

Peston, M. (1975), 'Towards an Economic Theory of Higher Education', in L. Dobson, T. Gear and A. Westoby (eds), *Management in Education: Some Techniques and Systems*. London: Ward Lock Educational in association with The Open University Press, pp. 189–99.

Polanyi, M. (1975), *The Great Transformation*. New York: Octagon Books.

Postone, M. (1993), *Time, Labor, and Social Domination. A Reinterpretation of Marx's Critical Theory*. Cambridge: Cambridge University Press.

—. (2009), 'Rethinking Marx's critical theory', in M. Postone, V. Murthy and Y. Kobayashi (eds), *History and Heteronomy: Critical Essays* (UTCP Booklet 12). Tokyo: UTCP, pp. 31–47.

Power, M. (1999), *The Audit Society: Rituals of Verification*. Oxford: Oxford University Press.

Pratt, J. (1997), *The Polytechnic Experiment*. Buckingham: Society for Research into Higher Education and Open University Press.

Prensky, M. (2001), 'Digital natives, digital immigrants part 1', *On the Horizon*, 9(5), pp. 1–6.

Pring, R. (2002), 'Performance management and control of the professions', in G. Trorey and C. Cullingford (eds), *Professional Development and Institutional Needs*. Aldershot: Ashgate Publishing Limited, pp. 15–33.

Prosser, M. and Trigwell, K. (1999), *Understanding Learning and Teaching: The Experience in Higher Education*. Buckingham: SRHE and Open University Press.

QAA (Quality Assurance Agency) (2000), *Handbook for Academic Review*. Gloucester: Quality Assurance Agency for Higher Education.

—. (2010), *Revised Code of Practice for Disabled Students*, [*online*] www.qaa.ac.uk/academicinfrastructure/codeOfPractice/section3/Section3Disabilities2010.asp (accessed 15 March 2011).

Ratcliffe, F. W. (2006), 'The civic universities and their libraries', in A. Black and P. Hoare (eds), *The Cambridge History of Libraries in Great Britain and Ireland*, Vol. III, 1850–2000. Cambridge: Cambridge University Press, pp. 357–76.

Readings, B. (1996), *The University in Ruins*. Cambridge, MA: Harvard University Press.

Towards Teaching in Public.indb 178 11/1/2011 2:23:50 PM

Ricardo, D. (1971), *Principles of Political Economy and Taxation*. Harmondsworth: Penguin.

Robinson, J. (2009), *Bluestockings*. London: Viking/Penguin Books.

Rochford, R. (2006), 'Is there *any* clear idea of a university?', *Journal of Higher Education Policy and Management*, 28(2), pp. 147–58.

Roderick, G. W. (1972), *Scientific and Technical Education in Nineteenth-Century England*. Newton Abbot: David and Charles.

Rogers, P. J. and Williams, B. (2006), 'Evaluation for practice improvement and organizational learning', in I. F. Shaw, J. C. Greene and M. M. Mark (eds), *The Sage Handbook of Evaluation*. London: Sage Publications, pp. 76–97.

Rolfe, H. (2002), 'Students' demands and expectations in an age of reduced financial support: The perspectives of lecturers in four English universities', *Journal of Higher Education Policy and Management*, 24(2), pp. 171–82.

Ross, T. (2010), 'University shortages force students into part-time degrees', *London Evening Standard*, News, 16 August 2010.

Roszak, T. (1986), *The Cult of Information: The Folklore of Computers and the True Art of Thinking*. New York: Pantheon Books.

Rubin, I. I. (1979), *A History of Economic Thought*. London: Pluto Press.

Rudduck, J. and Fielding, M. (2006), 'Student voice and the perils of popularity', *Educational Review*, 58(2), pp. 219–31.

Sanderson, M. (1972), *The Universities and British Industry 1950–1970*. London: Routledge and Kegan Paul.

—. (1991), *Education, Economic Change and Society in England 1780–1870*, 2nd edn. London: Macmillan.

Scott, J. C. (2006), 'The mission of the university: mediaeval to postmodern tranformations', *Journal of Higher Education*, 77(1), pp. 1–39.

Scott, P. (1989), 'Accountability, responsiveness and responsibility', in R. Glatter (ed.), *Educational Institutions and their Environments: Managing the Boundaries*. Milton Keynes: Open University Press.

—. (2008), 'Higher education and post modern societies', paper presented to the EUA Spring Conference, Barcelona, March 2008.

Seale, J. (2006), *E-learning and Accessibility in Higher Education*. Oxon: Routledge.

—. (2009), *Digital Inclusion*. London: London Knowledge Lab, Institute of Education.

Shattock, M. (ed.) (2009), Entrepreneurialism in Universities and the Knowledge Economy: Diversification and Organisational Change in European Higher Education, Maidenhead and New York, Society for Research into Higher Education and Open University Press.

Shattock, M. and Berdahl, R. (1984) 'The British University Grants Committee 1919–83: changing relationships with government and the universities', *Higher Education*, 13(5), pp. 471–99.

Shevlin, M., Banyard, P., Davies, M. and Griffiths, M. (2000), 'The validity of student evaluation of teaching in higher education: love me, love my lectures?', *Assessment and Evaluation in Higher Education*, 25(4), pp. 397–405.

Shortland, S. (2004), 'Peer observation: a tool for staff development or compliance?', *Journal of Further and Higher Education*, 28(2), pp. 219–28.

Shulman, L. (2005), 'Going public with our teaching: an anthology of practice', [online] www.goingpublicwithteaching.org (accessed 15 January 2011).

Shutt, H. (2010) *Beyond the Profits System: Possibilities for a Post-Capitalist Era*. New York: Zed Books Ltd.

Silver, H. (2007), 'Higher education and social change: purpose in pursuit?', *History of Education*, 36(4–5), pp. 535–50.

Simmons, J. (2001) 'Educational technology and academic freedom', *Techne*, 5(3), pp. 82–95.

Simon, B. (1960), *Studies in the History of Education 1780–1870*. London: Lawrence and Wishart.

—. (1974), *Education and the Labour Movement 1870–1920*. London: Lawrence and Wishart.

—. (1994), *The State and Educational Change: Essays in the History of Education and Pedagogy*. London: Lawrence and Wishart.

Slaughter, S. and Leslie, L. (1997), *Academic Capitalism: Politics, Policies and the Entrepreneurial University*. Baltimore and London: Johns Hopkins University Press.

Small, R. (2005), *Marx and Education*. Aldershot and Burlington: Ashgate.

Smith, A. (2008), *The Wealth of Nations*. Oxford: Oxford World's Classics, Oxford University Press.

Söderberg, J. (2007), *Hacking Capitalism. The Free and Open Source Software Movement*. London: Routledge.

Sohn-Rethel, A. (1978), *Intellectual and Manual Labour*. London: Macmillan.

Solly, H. (1867), *Working Men's Social Clubs and Educational Institutes*. London: Working Men's Clubs and Institute Union.

Spronken-Smith, R. and Walker, R. (2010), 'Can inquiry-based learning strengthen the links between teaching and disciplinary research?', *Studies in Higher Education*, 35(6), pp. 723–40.

Stacey, P. (2010), 'Foundation funded OER vs. tax payer funded OER – a tale of two mandates', *Open ED 2010 Proceedings*. Barcelonea: UOC, OU, BYU, [online] http://hdl.handle.net/10609/5241 (accessed 1 March 2011).

Standish, P. (2005), 'Towards an economy of higher education', *Critical Quarterly*, 47(1–2), pp. 53–71.

Stephens, M. D. and Roderick, G. W. (eds) (1983), *Samuel Smiles and Nineteenth Century Self-Help in Education*. Nottingham: Nottingham Studies in the History of Adult Education, Department of Adult Education, University of Nottingham.

Stevenson, H. and Bell, L. (2009), 'Introduction – Universities in transition: themes in higher education policy', in L. Bell, H. Stevenson and M. Neary (eds), *The Future of Higher Education: Policy, Pedagogy and the Student Experience*. London: Continuum Books, pp. 1–14.

Stevenson, H. and Tooms, A. K. (2010), 'Connecting "up there" with "down here": thoughts on globalisation, neo-liberalism and leadership praxis', in A. H. Normore (ed.), *Global Perspectives on Educational Leadership Reform: The Development and Preparation of Leaders of Learning and Learners of Leadership*. Bingley: Emerald, pp. 3–21.

Streeting, W. and Wise, G. (2009), *Rethinking the Values of Higher Education – Consumption, Partnership, Community?*, Gloucester: The Quality Assurance Agency for Higher Education.

Sumner, R. J. (1990), 'Nineteenth century British working class adult education: a model for Australian colonial efforts', *Australian Journal of Adult and Community Education*, 30(1), pp. 4–12.

Tatton, D. (2003), 'Literature, cultural studies and the WEA', in S. K. Roberts (ed.), *A Ministry of Enthusiasm: Centenary Essays on the Workers' Educational Association,* London: Pluto Press, pp. 238–58.

Taylor, A. (2000), 'Hollowing out or filling in? Taskforces and the management of cross-cutting issues in British government', *British Journal of Politics and Industrial Relations*, 2(1), pp. 46–71.

Taylor, C. and Robinson, C. (2009), 'Student voice: theorising power and participation', *Pedagogy, Culture and Society*, 17(2), pp. 161–75.

Taylor, P. G. (1999), *Making Sense of Academic Life: Academics, Universities and Change*. Buckingham: Open University Press and Society for Research into Higher Education.

Thirlwall, C. (1850), *The Advantages of Literary and Scientific Institutions for All Classes*. London: Longman and Co.

Thompson, E. (1971), *Warwick University Limited*. London: Penguin Books.

Thomson, P. and Gunter, H. (2006), 'From "consulting pupils" to "pupils as researchers": a situated case narrative', *British Educational Research Journal*, 32(6), pp. 839–56.

Trowler, P. (2001), 'Captured by the discourse? The socially constitutive power of new higher education discourse in the UK', *Organization*, 8(2), pp. 183–201.

TUC/NUS (2006), *All Work and Low Pay*, [online] www.tuc.org.uk/extras/allworklowpay.pdf (accessed 4 May 2011).

Turner, C. M. (1966), 'The development of Mechanics' Institutes in Warwickshire, Worcestershire and Staffordshire, 1825–90', unpublished MEd thesis, University of Leicester.

UCISA (2008), 'Universities and Colleges Information Systems Association: Survey of technology-enhanced learning for higher education in the UK', [online] www.ucisa.ac.uk/sitecore/media%20library/groups/tlig/vle_surveys/TEL%20survey%202008%20pdf (accessed 15 March 2011).

United States Department of Labor (2011), 'US Labor Department encourages applications for Trade Adjustment Assistance Community College and Career Training Grant Program', [online] www.dol.gov/opa/media/press/eta/eta20101436.htm (accessed 1 March, 2011).

University of Reading (2011), 'The University's History', [online] www.reading.ac.uk/about/about-history.aspx (accessed 18 May 2011).

van Dijk, J. (2006), 'Digital divide research, achievements and shortcomings', *Poetics*, 34(4–5), pp. 221–35.

Vernon, K. (2001), 'Calling the tune: British universities and the state, 1880–1914', *History of Education*, 30(3), pp. 251–71.

Vincent, D. (1981), *Bread, Knowledge and Freedom*. London: Europa Publications Ltd.

Wainwright, H., Rowbotham, S. and Segal, L. (1979), *Beyond the Fragments: Feminism and the Making of Socialism*. London: Merlin Books.

Walker, M. (2001), 'Higher education, critical professionalism and educational action research', paper presented at UCL Debates in Higher Education, 11 October 2001, [online] www.ucl.ac.uk/cishe/seminars/prev_debates.html (accessed 15 March 2011).

Walsh, H. J. (2009), 'The university movement in the North of England at the end of the nineteenth century', *Northern History*, XLVI(1), pp. 113–31.

Waterman, R. H. and Peters, T. J. (1982), *In Search of Excellence: Lessons from America's Best Run Companies*. New York: Harper and Row.

Webster, F. (2002), 'The information society revisited', in L. A. Lievrouw and S. Livingstone (eds), *Handbook of New Media*. London: Sage, pp. 255–66.

Weissenstein, R. L. (2010), 'Born with a mouse in their hand', *Bulletin* (Credit Suisse Magazine International), 2(May/June): pp. 57–60.

Weller, M. (2010), 'The return on peer review', [online] http://nogoodreason.typepad.co.uk/no_good_reason/2010/06/the-return-on-peer-review.html (accessed 8 October 2010).

Wendling, A. (2009), *Karl Marx on Technology and Alienation*. New York: Palgrave Macmillan.

West, E. (1963), 'A counterblast to Robbins', *STATIST*, pp. 1–5, [online] www.ncl.ac.uk/egwest/pdfs/counterblast.pdf (accessed 10 March 2011).

Wikipedia contributors (2011), 'Open educational resources', in *Wikipedia, The Free Encyclopedia*, [online] http://en.wikipedia.org/wiki/Open_educational_resources (accessed 1 March 2011).

Wiley, D. (2009), 'Update on MIT OCW finances – and click to enroll!', *Iterating Toward Openness*, [online] http://opencontent.org/blog/archives/1180 (accessed 1 March 2011).

Willetts, D. (2010), *The Pinch – How the Baby Boomers Stole Their Children's Future – and How They Can Give it Back*. London: Atlantic Books.

Williams, C. (ed.) (2007), *A Companion to Nineteenth-Century Britain*. Oxford: Blackwell Publishing, The Historical Association.

Williams, G. and Blackstone, T. (1983), *Response to Adversity: Higher Education in a Harsh Climate*. Guilford: The Society for Research in Higher Education.

Winn, J. (2010), 'ChemistryFM final report', [online] www.heacademy.ac.uk/assets/York/documents/ourwork/oer/OER_1_Lincoln_Final_Report.pdf (accessed 1 March 2011).

—. (2011), 'Wikileaks and the limits of protocol', in J. Mair, and R. L. Keeble (eds), *Face the Future – Tools for the Modern Media Age. The Internet and Journalism Today*. Bury St. Edmunds: Abramis Publishing, pp. 238–48.

Wodehouse, H. (1925), *A Survey of the History of Education*, 2nd edn. London: Edward Arnold and Co.

Wood, E. M. (2002), *The Origin of Capitalism. A Longer View*. London: Verso.

Wood, J. and Levy, P. (2008). 'Inquiry-based learning pedagogies in the arts and social sciences: purposes, conceptions and models of practice', paper presented to the Improving Student Learning Symposium, University of Durham, pp. 1–3 September.

Wright, S. (2002), *Storming Heaven: Class Composition and Struggles in Italian Autonomist Marxism*. London: Pluto Press.

Young, I. M. (1990), *Politics and the Justice of Difference*. Princeton, NJ: Princeton University Press.

Zabaleta, F. (2007), 'The use and misuse of student evaluations of teaching', *Teaching in Higher Education*, 12(1), pp. 55–76.

Zizek, S. (2002), *Revolution at the Gates: A Selection of Writing from February to October 1917*. London: Verso.

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Open education: Common(s), commonism and the new common wealth

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abstract

Open Education, and specifically the Open Education Resources movement, seeks to provide universal access to knowledge, undermining the historical enclosure and increasing privatisation of the public education system. An important aspect of this movement is a reinvigoration of the concept of 'the commons'. The paper examines this aspiration by submitting the implicit theoretical assumptions of Open Education and the underlying notion of 'the commons' to the test of critical political economy. The paper acknowledges the radical possibility of the idea of 'the commons', but argues that its radical potentiality can be undermined by a preoccupation with 'the freedom of things rather than with the freedom of labour'. The paper presents an interpretation of 'the commons' based on the concept of 'living knowledge' and 'autonomous institutionality' (Roggero, 2011), and offers the Social Science Centre in the UK, as an example of an 'institution of the common'[1]. The paper concludes by arguing the most radical revision of the concept of 'the common' involves a fundamental reappraisal of what constitutes social or common wealth.

Introduction

There are two distinct forms of Open Education: Open Education itself, and Open Educational Resources; these two terms are often used interchangeably, yet retain subtle differences.

Open Education refers to recent efforts by individuals and organisations across the world to use the Internet to share knowledge, ideas, teaching practices, infrastructure, tools and resources, inside and outside formal educational settings. Although the term Open Education has been used since the 1960s, the current dominant use of the term refers to co-ordinated efforts during the past decade to exploit the growing availability of personal computers and increasingly ubiquitous high-speed networks.

Examples of Open Education initiatives are varied and still emerging but include newly established organisations such as the P2P University; new learning theories, such as

1 The authors are founding members of the Social Science Centre, Lincoln, UK.

Connectivism; and new styles of participatory learning design, such as Massive Open Online Courses (MOOCs). All aspects of Open Education place an emphasis on the availability of and advantages afforded by the Internet for the production and exchange of knowledge. For example, the P2P University refers to itself as a 'grassroots open education project that organises learning outside of institutional walls… leveraging the internet and educational materials available online' (P2PU.org).

P2PU emphasizes its accessibility, low cost and democratic style of bringing together those who wish to teach and those who wish to learn. Connectivism is 'a learning theory for the digital age' (Seimens, 2004), a cybernetic theory of personal networks, interdependent nodes and dynamic feedback. Its authors emphasise the inter-related connections made possible by digital networks and the cycle of information that flows from the individual to the network and into organizations. The 'amplification of learning, knowledge and understanding through the extension of a personal network is the epitome of connectivism' (Siemens, 2004). MOOCs apply Connectivist learning theory in the design of courses with hundreds or thousands of autonomous participants encouraged to participate through their Personal Learning Environments (PLEs), constructed out of blogs, wikis and other loosely coupled services and aggregated resources from the Internet. From each of these examples, Open Education can be understood as a positive response to the seemingly technologically determined nature of our lives, constructing new opportunities for access to learning, advancing greater democracy in learning design, asserting self-determination and supporting lifelong learning in the face of rapid changes in labour-force requirements.

Open Educational Resources (OER) refers to the worldwide community effort to create an educational commons based on the provision of actual 'educational materials and resources offered freely and openly for anyone to use and under some licenses to re-mix, improve and redistribute' (Wikipedia). Typically, those resources are made available under a Creative Commons license and include both learning resources and tools by which those resources are created, managed and disseminated.

In their simplest form, OERs are any teaching or learning resource on the Internet that is licensed for re-use. The largest institutional collection of OERs is published by MIT's *OpenCourseWare* project, which has systematically licensed teaching and learning resources for over 2000 of MIT's courses since 2001 (Winn, 2012). Similarly, recurrent programmes of funding in the UK have led to the creation and release of OERs across the higher education sector and are available from JORUM, the national repository for open teaching and learning materials.

In just ten years, a relatively small number of educators have created a discernible movement that has attracted millions of pounds from philanthropic and state funding. This movement, growing out of hundreds of universities, colleges, schools and other organisations, has produced tens of thousands of educational resources, often entire course materials that can be used by anyone with access to the Internet. Today, there are

international consortia, conferences, NGOs and government reports that promote the opening up of education, to which Open Education and OERs are central.

Open Education is a pragmatic response by educators and researchers to the growth of the Internet, using a widespread technology to undertake what its advocates see as both a public good and to exploit an opportunity to effect educational reform. The question remains open as to whether Open Education and OER constitute a revolution in teaching and learning, as their proponents claim:

> We are on the cusp of a global revolution in teaching and learning. Educators worldwide are developing a vast pool of educational resources on the Internet, open and free for all to use. These educators are creating a world where each and every person on earth can access and contribute to the sum of all human knowledge. They are also planting the seeds of a new pedagogy where educators and learners create, shape and evolve knowledge together, deepening their skills and understanding as they go. (Cape Town Open Education Declaration, 2007)

Private property and Creative Commons

The question remains as the extent to which the values that underpin Open Education and OER constitute a real revolution in education. The answer to that question revolves around the concept of 'the commons' and the way it has been used to encode new forms of property under the concept of the Creative Commons (Lessig, 2001, 2004; Boyle, 2008; Benkler, 2006).

Open Education and OER rely heavily on the use of Creative Commons licenses, all of which are in one way or another derived from the General Public License (GPL) and Berkeley Software Distribution (BSD) licenses first created in 1989. Since the 1990s, software has been created and distributed using such licenses and it is widely acknowledged that the popular Creative Commons licenses are inspired by the use of open licenses in the world of software. Creative commons licensing provides a method for producers of Open Educational Resources to define more precisely the terms of use of their intellectual work.

The writing of Lessig, Benkler, Boyle and others provides persuasive and eloquent arguments about the importance of protecting and developing a creative and (re)productive commons in the face of attempts to consolidate the property relation in an increasingly digital culture. However, this tactic has been characterized as 'information exceptionalism' (Pederson, 2010) in that while there is a well-established history of legislation that conceives 'property' as both tangible and intangible, prominent writers in the recent Free Culture movement tactically avoid conflating these tangible and intangible realms:

> Essentially, the Free Software and Free Culture movements reject the concept of property and instead choose to frame issues pertaining to ideas, information and knowledge - or the intangible realm - in

> terms of freedom, liberty, human rights, policy, intervention, and regulation. Anything but property, but preferably 'policy'. (Pederson, 2010: 93)

As a result, an acknowledgement of the underpinning material basis for the production of the commons is avoided, treating information as the exception to the naturalised rule of property. However, this division of property into policy only serves to *protect* the private property relation by diverting public attention to the promise of freedoms in the intangible informational realm (Pederson, 2010: 102). Consequently, Open Education and OER, in their attempts to provide universal access to knowledge, do not undermine the increasing privatisation of the public education system.

From the freedom of things to the freedom of labour

While Open Education attempts to liberate intellectual work from the constraints of intellectual property law, it does little to liberate the intellectual worker from the constraints of the academic labour process and the reality of private property. The reification of 'the commons' as a site of non-scarce, replicable and accessible educational resources is to mistake the freedom of things for the freedom of labour. Open Education Resources are the product of intellectual work and not simply the application of novel Creative Commons licenses. In that sense there is nothing new about the production of OERs, they are simply 'a stage in the metamorphosis of the labour process' (Söderberg, 2007: 71).

As universities rapidly replace their collegial frameworks with corporate structures, prioritising commercial partnerships and promoting themselves as engines of economic growth (Finlayson and Hayward, 2010; Levidow, 2002), the jobs and employment rights of teachers grows increasingly vulnerable and exploited through the use of fixed-term and casual employment contracts and the roll out of technologies which aim to automate and regulate the work of teachers in the name of efficiency and improving the student-customer experience. In this form, education is simply a market where indebted students enter into a contract around learning content and accreditation (Noble, 1998).

As the university increasingly adopts corporate forms, objectives and practices, so the role of the academic is to improve the brand and reputation of the university (Neocleous, 2003). As can be seen in the case of MIT, the public profile provided by open, online courses and open educational resources provides a further level of academic distinction to higher education institutions, and is at once both a contribution to the 'public good' and a method of extracting further value out of the academic labour process (Winn, 2012). To what extent the Open Education movement can oppose the corporate personification of institutions and the objectification of their staff and students is still open to question, although the overwhelming trend so far is for OER to be seen as sustainable only to the extent that it can attract private and state funding, which serves the reputation building and, therefore, value creation of the respective universities as institutions for the public good and notable for the quality of their intellectual output.

'The commons': a new radical common-sense

The concept of 'the commons' has become ubiquitous as a generic term with which to conceptualise the notion of Open Education and OERs. At the same time the notion of 'the commons', has been subject to further critique and elaboration by Marxists scholars, so much so that the concept of 'the commons' has become the new radical commonsense, and a way of reinvigorating the concept of communism.

Commons has become: 'common organisational structures, where the common is seen not as a natural resource but a social product, and this common is an exhaustible source of innovation and creativity' (Hardt and Negri, 2009: 111-112), and 'the incarnation, the production and the liberation of the multitude' (2000: 303), as well as 'the shared substance of our social being' (Zizek, 2009). In another formulation 'the commons' has emerged as the verb 'to common', with 'commoning' as the basis for a new constitution, 'the rules we use to decide how to share our common resources' (Midnight Notes, 2009). In a more historical exposition 'commoning' is reclaimed as a way of establishing customary rights, the basic principles of which are: 'anti-enclosure, neighbourhood, travel, subsistence and reparation' (Linebaugh, 2008: 275) providing 'the right of resistance to the reality of the planet of slums, gated communities, and terror without end' (Linebaugh, 2008: 279), and the basis for 'networks of resistance… against the capitalist state' (De Angelis and Stavrides, 2011).

One of the more sustained renditions of a new commons is the notion of 'commonism' elaborated by Dyer-Witheford (2006, 2007), who, in a number of articles has sought to promote the concept of commonism as a way to avoid the bad history of authoritarian state communism, while, at the same time, providing an antidote to centralised planning and the restrictions of private property through new forms of collective ownership. An important aspect of the notion of commonism is the way in which it connects with issues of technological production in the context of Open Education and Open Educational Resources. Dyer-Witheford's most significant work to date has been *Cyber-Marx: Cycles and Circuits of Struggle in High Technology Capitalism* (1999). In this book he sets out the ways in which postmodern capitalism has extended beyond the factory to permeate all of social life, particularly through the digitalised circuits of cyber-space. He shows how these extended social sites and the circuits through which they are connected provide spaces of interconnected collected struggle and resistance.

Cyber-Marx is conceptualized within the framework of Autonomist Marxism. The basic framework of Autonomism is well known (Wright, 2002). Key aspects of this version of Marxism are, firstly, Marx's mature social theory as elaborated in *Capital* and the *Grundrisse* is a theory of capital's precariousness, rather than the theory of domination espoused by orthodox Marxism. This precariousness is produced through the power of labour (the working class):

> We too have worked with a concept that puts capitalist development first, and workers second. This is a mistake. And now we have to turn the problem on its head, reverse the polarity, and start again from

> the beginning: and the beginning is the class struggle of the working class. At the level of socially developed capital, capitalist development becomes subordinated to working class struggles; it follows behind them, and they set the pace to which the political mechanisms of capital's own reproduction must be tuned. (Tronti, 1964)

Secondly, this 'scandalous novelty of this new workerist ideology' (Wright, 2002: 63) demanded an even more shocking revelation. Not only was Capital not the centre of its own social universe, but the working class was now reconstituted to include not just workers at work in factories, but other groups that included students, the unemployed and the women's movement, previously not regarded as central to the reproduction of surplus value. Key to this formulation was the concept of the 'social factory':

> At the highest level of capitalist development, the social relation becomes a moment of the relation of production, the whole of society becomes an articulation of production; in other words, the whole of society exists as a function of the factory and the factory extends its exclusive domination over the whole of society. (Tronti, 1971: 51-2, quoted in Wright, 2002: 37-38)

Thirdly, at the centre of the notion of class composition lies the concept of self-valorisation (*auto-valorizzazione*). The Autonomists had taken the most central idea of Marx's capital, the law of value, and turned it against itself: Capital as the self expansive Subject is now replaced by the capacity of the working class for self valorization in and against the Capital relation. Self-valorisation is defined as: 'the positive moments of working class autonomy - where the negative moments are made up of workers' resistance to capital domination'; and, 'a self-defining, self-determining process which goes beyond the mere resistance to capitalist valorisation to a positive project of self-constitution' (Cleaver, 1992: 129 quoted in Dinerstein, Bohn, and Spicer, 2008).

Finally, one of the very practical ways by which this self-valorisation and class recomposition might be achieved is through workers enquiry or co-research. Beginning as inquiry into actual conditions of work in Italian factories in the 1950s, workers alongside intellectuals used the methods of social science research to develop their own form of radical sociology as the basis for a revolutionary science, i.e., the production of knowledge as a political project: 'the joint production of social knowledge' (Wright, 2002: 23); and so come to know the basis of their own class recomposition. This is not knowledge for its own sake but 'the only way to understand the system is conceiving its destruction' (Asor Rosa in Quaderni Rosi quoted in Wright, 2002: 29).

All of this practical intellectual activity was possessed with a sense of immanence and urgency, giving immediacy to the slogan: 'communism is the real movement which abolishes the present state of things' (Marx, 1998). For these new revolutionary scientists communism is not a project for constructing a model of a future world; but, rather, 'a practical means for the destruction of the present society' (Tronti, 1965: 8).

Commonism: as a cell-like form

Dyer-Witheford takes the spirit and the sensibility of Autonomist Marxism, not least its conceptual ingenuity, and attempts to recreate a framework of resistance through his concept of commonism. Just as Autonomia inverts the notion of valorisation as self-valorisation, Commonism takes as its starting point the organising principle on which the circuit of capitalist expansion is established, i.e. the commodity-form, and uses it as the basis of revolutionary struggle. As Dyer-Witheford reminds us, Marx opens Capital Vol. 1 with the statement:

> The wealth of society in which the capitalist mode of production prevails, *appears* as an immense collection of commodities; the individual commodity *appears* as its elemental form. Our investigation therefore begins with the analysis of the commodity. (Marx, 1990. Authors' emphasis)

Commonism takes this statement as the organising principle for its own radical response to the social relations of capitalist society:

> If the cell form of capitalism is the commodity, the cellular form of a society beyond capital is the common. A commodity is a good produced for sale, a common is a good produced, or conserved, to be shared. The notion of a commodity, a good produced for sale, presupposes private owners between whom the exchange occurs. The notions of the common presupposes collectivities – associations and assemblies – within which sharing is organised. If capitalism presents itself as an immense heap of commodities, commonism is a multiplication of commons. (Dyer-Witheford, 2007)

The emphasis here is on the difference between the production of goods for sale, and the production of goods to be shared as a public good. In each case the emphasis is on forms of ownership and sharing. Dyer-Witheford (2007) argues that the moment of collision between the commodity and the commons is the moment of struggle against the logic of capitalism. He identifies three distinct areas where these struggles are concentrated: the ecology, the social, and the network:

> Ecological disaster is the revenge of the markets so-called negative externalities'; social development is based on market operations, 'intensifying inequality, with immiseration amidst plentitude'; and networks are, 'the market's inability to accommodate its own positive externalities, that is, to allow the full benefits of innovations when they overflow market price mechanisms. (Dyer-Witheford, 2007)

Commonism points towards the kinds of progressive forms of social associations that these struggles have created. Commonism identifies these new forms of ownership as the *ecological commons* – 'conservation and regulation but also of public funding of new technologies and transportation systems'; the *social commons* – 'a global guaranteed livelihood entails a commons based on redistribution of wealth, while solidarity economics create experimental collectively-managed forms of production', and the *networked commons* – 'a commons of abundance, of non-rivalrous information goods', including free and open-source software as well as OERs (Dyer-Witheford, 2007).

In a moment of theoretical ingenuity, Dyer-Witheford argues that just as Capital operates through circuits of exchange, so too the commons circulate to create self-reinforcing

networks of alternative provision in a way that is both 'aggressive and expansive: proliferating, self-strengthening and diversifying' (Dyer-Witheford, 2007). It is this sense of linked and connected struggles that form the core of his notion of commonism. Taken together these three spheres will form a new social order: a 'commons of singularites'; or, 'the circulation of the common', i.e., commonism'. Commonism will be carried forward through 'a pluralistic planning process' involving state and non-state organisations supported by a 'commonist' government, and in that way represent a global new 'New Deal' of major proportions (Dyer-Witheford, 2007).

In a previous elaboration, Dyer-Witheford connects commonism very directly with the concept of cognitive capitalism, generated by new high technologies, based on digitalisation and biotechnology, all of which have the capacity to be life-changing (Dyer-Witheford, 2006: 23). Following Marx (1843), he defines this capacity for human transformation, as 'Species Beings'.

Dyer-Witheford develops the essence of radical subjectivity implied in this notion of the commons through the concept of 'species being', which he adapts from Marx's *Economic and Philosophical Manuscripts* 1844. Dyer-Witheford reminds us that Marx defined 'species being' as human life that is alienated from products of its own labour, from fellow beings, from the natural world and from their own 'historical possibilities of self-development' (Dyer-Witheford, 2006: 17). 'Species being', after Marx, is 'life activity itself as an object of will and consciousness' (Dyer-Witheford, 2006: 17). 'Species being' is 'a constitutive power, a bootstrapped, self-reinforcing loop of social co-operation, technoscientific competencies and conscious awareness' (2006:17). It is 'the capacity of humans to affect change in their collective development' (Dyer-Witheford, 2006: 17). Dyer-Witheford makes the bold claim:

> 'Species Being' is the closest Marx came to positively identifying, transformative agency of communism. The creation of a 'working class' as a decomposition of species being inflicted by the 'class-ifying' gridding and divisive operations of capital as it alienates species being: class identity is that which has to be destroyed in struggle so that species being can emerge. (18)

Dyer-Witheford argues that the new regimes of biotechnology and digitalisation offer the potential for the socialisation of productive activity, new modes of product creation and circulation outside of 'the orbit of the commodity form' (Dyer-Witheford, 2006: 25). This can happen, he argues, through the development of peer-to-peer and open source networks: as 'creative commons' and 'open 'cultures' (Dyer-Witheford, 2006: 25), as well as by access to affordable drugs, and the social control of pharmaceutical production and distribution. In this way commonism is contesting the regime of private property of the world market, 'not as a natural state, but an equalitarian order to be achieved' (Dyer-Witheford, 2006: 27). Again, Dyer-Witheford argues this can be carried out by a regime of 'social planning, and on a scale to make previous efforts look retiring' (Dyer-Witheford, 2006: 30). All of this, he claims, is made possible by the 'new informational technologies created by cognitive capital [which] makes such governmentality feasible' (Dyer-Witheford, 2006: 30), kept in check by the logic of the new planetary logic of the

commons: 'the logic of collective creativity and welfare proposed by the counter-globalisation movements' (Dyer-Witheford, 2006: 16): the new commonism.

Critique of Commonism and Autonomist Marxism

While commonism draws attention to progressive forms of collaborative labour, its focus is very much on the positive redistribution of goods and resources. The implication is that different forms of exchange produce different forms of social activity, 'shared resources generate forms of shared co-operation – associations – that coordinate the conversion of further resources into expanded commons' (Dyer-Witheford, 2007). The focus is very much on exchange relations rather than searching for more substantive underlying levels of social determinations in the ways in which social relations are produced.

With its focus on exchange rather than production, commonism not only replays the consumerist limits of the Open Education and Open Educational Resources movement, but also, ironically, is in danger of replicating the forms of social regulation it is attempting to avoid: Socialism. If Socialism is 'the collective ownership of the means of production and economic planning in an industrialised context' (Postone, 1993: 7), then commonism looks very much like the latest form of socialist society. Notwithstanding the fact that commonism attempts to privilege one form of planning over another, radical and democratic rather than centralised and repressive, without a fundamental exposition of the processes through which capitalist society is (re)produced, these instructions look normative and contingent rather than determined by a progressive materially grounded social project (Postone, 1993: 11 & 15).

The limits of Dyer-Witheford's commonism are the limits of Autonomist Marxism. Autonomia does provide a powerful theorisation, the strength of which is its ability to connect and reconnect with movements of revolutionary resistance. However, its populist and enduring appeal is also a source of its theoretical weakness. By presenting the working class as the substance of radical subjectivity, Autonomia is presenting labour as a fetishised and transhistorical category, transgressing the key formulation of Marx's mature social science. This point is well made by the Endnotes Collective:

> Labour does not simply pre-exist its objectification in the capitalist commodity as a positive ground to be liberated in socialism or communism through the alteration of its formal expression. Rather, in a fundamental sense value – as the primary social mediation – pre-exists and thus has a priority over labour. (Endnotes Collective, 2010)

In this way, the overcoming of Capital cannot simply involve the emancipation of workers, or any other form of work that suggests a naturalised quality of human activity, e.g., 'species being'; but, rather, the destruction of the commodity-form and the value relation on which it is based. The Endnotes Collective refer to this type of negative critique as 'communisation'.

The importance of 'improvement'

This formulation of labour as the historical and logical product of the development of capitalist social relations is made clear through an exposition of the development of the anti-commons movement of enclosure. Writers in the Marxist tradition have exposed the historical and logical development of capitalism as the destruction of common land and its associated customary rights as well as the process by which value is extracted from workers. This process of the ongoing production of surplus value is captured by the concept of improvement – an important issue that is often underplayed in the historical account of commons and enclosure[2]. It is, in fact, the process of improvement that provides the dynamic for technological developments and bio-science (Meiksins Wood, 2002).

Capitalism began as a process of enclosure and improvement; starting in England in the 16th century it spread throughout the world by colonialism, empire and globalisation (Meiksins Wood, 2002). This process of enclosure (i.e. 'primitive accumulation') by which peasants and indigenous peoples were forced from the land was characterised by violence and repression, signaling a complete transformation in the most basic human practices with each other and with nature (Meiksins Wood, 2002: 95; Bellamy Foster, 2000).

Enclosure and improvement are not simply about the restrictions and development of common land, but are more fundamentally concerned with the historic and social fabrication of human labour as waged work, forming the basis for capitalist relations of production. Under the terms of waged work direct producers are dispossessed of all property, other than their own labour-power, which they are compelled to sell to their employers. The rate at which labour-power is exploited by employers decides the amount of surplus value that is produced. The rate of surplus value is not in any sense related to the concrete nature of labour (i.e. use value) or the quantity of goods produced (i.e. empirical wealth), but is a social calculation based on the productivity of each worker (i.e. socially necessary labour) in relation to the productivity of labour in general (i.e. abstract labour), taken as a social average. It is the extent to which value in capitalism is calculated as the social measure of a real abstraction, rather than simply by the quantity of goods produced, that defines the character of capitalist value (i.e. non-empirical wealth). Under pressure of competition employers are forced to improve the objective conditions of production, including the capacity of labour-power, to realise their investment on the market by the exchange of goods and services (i. e. commodities). These objective conditions include the forms in which labour-power is reproduced, meaning that the relations of work extend to include the whole of society, until they constitute the nature of the social itself (i.e. real subsumption).

These improvements are highly contentious and are prone to produce ever more sophisticated forms of worker resistance as the capacity of labour-power is improved.

2 For example, Linebaugh's compelling account of the Magna Carta in the history of commons has little to say on the issue of improvement.

These increasingly sophisticated forms of protest ensure that conflict, contradiction and crisis are an endemic aspect of the capitalist world. The alternatives proposed by dispossessed workers are based on the social ownership and control of the conditions of production, which the increasingly socialised process of production implies. It is this increasingly social process of production which creates the conditions for the idea of 'the commons' to re-emerge as a critical principle and political project.

The peculiarity of Capital is that these imperatives of production are impersonal and indirect, enforced through the abstract law of value which exists as the political power of the state and the economic power of money, each of which constitute, as complementary forms, the abstract power of the capital relation (Postone, 1993; Clarke, 1991a). This process of abstraction renders what is a social and historical process as if it were natural and timeless, requiring a critique of political economy to reveal its true nature.

Bearing this in mind, the state cannot exist as a functional solution to the catastrophe of Capitalism, e.g., a new 'New Deal', as however populist or democratic its planning structures might be the capitalist state is itself a form of crisis and catastrophe (Clarke, 1991a). Nor, by the same logic, can emancipation be found in the concept of 'Species Being', nor through the idea of alienated labour on which it is based. The power of Marx's work is found in the revelation of the power of abstraction of labour and the value-form through which Marx laid the foundations for his mature critique of political economy (Clarke, 1991b: 82).

A fully grounded social theory begins in the substantive forms within which social relations are derived and determined. For Marx those relations are determined by Capital, described as '…value in motion...' (Marx, 1990). Therefore, the starting point for any analysis of capital is value and not the commodity-form or 'species being' (Postone, 1993; Clarke, 1991b). While Commonism is right to draw our attention to the significance of the commodity-form as the organising principle for capitalism, Marx's mature social theory is careful to draw our attention to the fact that the wealth of capitalist societies only *appears* to be the vast accumulation of commodities. The real wealth of capitalist society is not material things produced by alienated labour, as in the early work, but immaterial value, the substance of which is abstract labour, which *appears* in the form of things (i.e. commodities). Therefore, any attempt to build a critique of Capital from the concept of the commodity-form or 'species being', rather than the immaterial reality of value out of which the thing like world of commodities are derived, is based on a fundamental misconception of Marx's critical social theory and the form of value in capital the substance of which is abstract labour (Clarke, 1991b).

A fully developed critique of capital does not start by replicating the cell-like commodity-form, nor by basing radical subjectivity within a transhistorical and suprasocial concept of 'species being'. The key point is that 'Marx's notion of the overcoming of capitalism... involves a transformation not only of the existing mode of distribution but also of the mode

of production' (Postone, 1993 23). This means negating the logic of capitalist production: the law of value, through a process of 'anti-value in motion' (Dinerstein and Neary, 2002).

Anti-value in motion: A new 'institution of the common'

In the final chapter of *Cyber-Marx,* Dyer-Witheford provides what *appears* to be a compelling account of the ways in which academic labour can develop forms of resistance, including strikes, inviting activists onto campus, by allegiances with other protesting workers and social movements against 'high technology austerity' (Dyer-Witheford, 1999: 235). Along with these he suggests newly constituted curricula based on specific radical topics: the establishment of new indices of well-being beyond monetarised measures; the new capacities for democratic planning afforded by new technology; systems of income allocation outside of wage – labour; the development of peer to peer open source communications networks; research projects that seek to enrich critical political economy with ecological and feminist knowledge, and the formation of aesthetics and imaginaries adequate to the scope of what a progressive and sustainable humanity might become (Dyer-Witheford, 2004: 90- 91). He suggests using the technologies against themselves through what he refers to as 'movements of species being' (Dyer-Witheford, 2004: 89):

> They will invoke some of the same intellectual and co-operative capacities cognitive capital tries to harness, but point them in different directions, and with a vastly expanded horizon of collective responsibility. They will establish networks of alternative research, new connections and alliances; they build a capacity for counter-planning from below. (Dyer-Witheford, 2004: 89)

Dyer-Witheford is right to argue that 'Universities will be key to this transformation' (Dyer-Witheford, 2004: 90), as a key institution in the move towards a post capitalist society of the commons. But in Dyer-Witheford's commonist world of knowledge production, the organisational structure of the university is not challenged fundamentally, its institutional form remains intact.

Recently, a reinvigorated version of Autonomia has emerged, which utilises the concept of the commons in a higher educational context, but in a way that prioritises the nature of the University's institutional form as: 'the institutions of the common', and an insurgent form of 'living knowledge' (Roggero, 2011). At the core of 'living knowledge' lies the form and character of the university 'where conflicts within the production of knowledge are a central battlefield of class struggle through power relations, and productive relations' (Roggero, 2011: 3).

At the centre of the process of production is co-research, challenging 'the borders between research and politics, knowledge and conflicts, the university and the social context, work and militancy' (Roggero, 2011: 5). The principle of 'co-research' involves students and academics working together as a form of political praxis, so that the production of knowledge becomes a key principle of self-organisation and radical subjectivity (Roggero, 2011). And in the middle of all of this the concept of 'the common' is re-established.

Living knowledge insists that 'the commons' must be denaturalised, and situated historically and logically 'within the transformations of the social relations of labour and capital and not just in the current context' (Roggero, 2011: 8); but, rather, as new 'institutions of the common' (Roggero, 2011: 9). This goes beyond commonist notions of organising courses, or inviting academics onto campus, or holding strikes or even forming allegiances with social movements; but is, rather, a project to create '*autonomous institutionality'* (Roggero, 2011: 129).

The Social Science Centre, in Lincoln, UK might be described as a new 'institution of the common' or 'autonomous institutionality'. While the Social Science Centre has no formal connection with the architects of 'living knowledge', it shares many of their pragmatic and theoretical imperatives (Neary, 2012).

The Social Science Centre (SSC) is a not-for-profit, co-operative model of higher education, managed by its members: academics, students, administrators, educators, activists, on the basis of democratic, non-hierarchical, dynamic self-organisational principles. The Social Science Centre has emerged out of the crisis of higher education in the context of the crisis of capitalism. The Social Science Centre is rooted in the history of how those excluded from higher education have organised their own intellectual lives and learning in collaboration with university academics. Historical examples in the UK include Working Mens' Clubs and University Settlements, Free Libraries, Extension Classes, Ruskin College and the Workers Educational Association (Rose, 2001; Thody, 2012).

The SSC is grounded in forms of organisation that have arisen out of the development of the Social Centre network in the UK and around the world. Social Centres have emerged as sites for the development of autonomous politics and resistance to the growing corporate takeover, enclosure and alienation of everyday life. Social Centres convert local unused buildings into self-organised sites for the provision of radical community use: social services, music, art and publishing. A key characteristic that the SSC takes from all these forms of provision is the concept of localness. The Centre will make use of the most up to date educational technologies, but this is not an online or web-based provision. It is important that the Centre is in a real space at the heart of its local community.

There is a very clear link between workers enquiry and co-research applied to the current moment through new concepts of autonomous education, revealed as the construction of 'living knowledge' (Roggero, 2011). The SSC is inspired by and connected with movements of resistance against the corporatisation of higher education in Europe and around the world. These movements include the Edu-Factory Collective for whom the crisis of higher education is part of a wider global social and political crisis. This group of academics and students argue that in a global capitalist economy, increasingly dominated by knowledge manufacture and exchange: cognitive capitalism, the University has become an important site of struggle over the way in which knowledge is produced.

The co-operative practices on which the management of the SSC is based extend to the ways in which courses are taught. All classes will be participative and collaborative, so as

to include the experience and knowledge of the student as an intrinsic part of the teaching and learning programmes. Students will have the chance to design courses as well as deliver some of the teaching themselves with support from other members of the project. Students will be able to work with academics on research projects as well as publish their own writings. A core principle of the Centre is that teachers and students and the supporting members have much to learn from each other.

Students will not leave the Centre with a university degree, but they will have a learning experience that is equivalent to the level of a degree; each student will receive a certificate in higher education, with an extensive written transcript detailing their academic and intellectual achievements. The time taken to gain an award is subject to negotiation between student and teachers. The subjects taught at the Centre will be based on the Social Sciences, broadly defined, in ways that involve the knowledge and experience of the teachers and students. The SSC acknowledges that the co-operative model does not provided an immediate, real alternative to the capitalist labour process, but provides a space within which lessons learned from the struggle to create a dissenting form of higher education can be further developed.

While the Centre is located in Lincoln, it does not have any formal links with the University of Lincoln or with any other University. It is hoped and expected that this model of small scale, self-funded higher education provision will be adapted for different subject areas and in different locations nationally and internationally. These multi-various Centres will provide a supportive and co-operative network to further advance this radical model for higher and higher education in the UK and around the world.

Conclusion: a new common wealth

Open Education and OER are progressive attempts to provide educational materials that are openly accessible and re-usable. While these forms of provision stretch the limits of the laws of intellectual property, they do not undermine the laws of private property, but further liberalise the conditions through which knowledge can be exchanged. While these new educational resources provide for closer engagement between student and academic they do not undermine the ways in which capitalist work is organised by concentrating on the freedom of things over the freedom of people.

Despite the dynamism generated by the digitalisation of social life and the apparently endless possibilities provided by this ‘technological utopia’, the logic of the so called virtual revolution does not escape the conditions where ‘the dull compulsion of economic life completes the subjection of the labourer to the capitalist’ (Marx, 1990).

Any attempt to escape these conditions demands recasting the meaning and purpose of work so that it is based on an emancipatory notion of what constitutes wealth in a newly substantiated post-capitalist world. This new form of common wealth is materialised through an understanding that capitalism has made an exponential improvement in the

productive power and knowledge of humanity, but that these powers and knowledge have been used to oppress its own productive populations (Postone, 1993). Any revolutionary project must be based on the need re-appropriate this knowledge and power for the populations that have produced it; not simply to make available new knowledge in less restricted 'open' forms as OERs, nor to reify new forms of property relations through commonism; but, rather, to produce a new common sense: raising critique to the level of society so that society can recognise its real nature and recompose itself in a more sustainable and resilient form.

The question for a *really* open education is not the extent to which educational resources can be made freely available, within the current constraints of capitalist property law; but, rather, what should constitute the nature of wealth in a post capitalist society. That is the really open question.

references

Bell, P. and H. Cleaver (1982) 'Marx's theory of crisis as a theory of class struggle', *The Commoner: A Journal for Other Values* (2002) [http://www.commoner.org.uk/cleaver05.pdf].

Bellamy Foster, J. (2000) *Marx's ecology: Materialism and nature.* New York: Monthly Review Press.

Benkler, Y. (2006) *The wealth of networks*, London: Yale University Press.

Bonefeld, W., R. Gunn, and K. Psychopedis (1992) *Open Marxism: Dialectics and history, Volume 1.* London: Pluto Press.

Boyle, J. (2008) *The public domain*. London: Yale University Press.

Cape Town Open Education Declaration (2007) [http://www.capetowndeclaration.org/read-the-declaration].

Clarke, S. (1991a) *The state debate.* London: Macmillan.

Clarke, S. (1991b) *Marx, marginalism and modern sociology.* London: Macmillan.

Cleaver, H. (1992) 'The inversion of class perspective in Marxian theory: From valorisation to self-valorisation', quoted in S. Bohm. [https://webspace.utexas.edu/hcleaver/www/Inversion.pdf].

De Angelis and Stavrides (2011) 'On the Commons: A public interview with Massimo De Angelis and Stavros Stavrides', e-flux [http://www.e-flux.com/journal/on-the-commons-a-public-interview-with-massimo-de-angelis-and-stavros-stavrides/].

Dinerstein, A.C and A. Spicer (2010) 'Impossibilities of autonomy: Social movements in and beyond capital, the state and development', *Social Movement Studies*, 9 (1): 17-32.

Dinerstein, A. and M. Neary (2002) 'Anti-value in motion: Labour, real subsumption and the struggles against capitalism', in A. Dinerstein and M. Neary (eds.) *The labour debate: An investigation into the theory and reality of capitalist work*. Aldershot: Ashgate.

Dyer-Witheford, N. (1999) *Cyber Marx: Cycles and circuits of struggles in high technology capitalism.* Urbana and Chicago: University of Illinois Press.

Dyer Witheford, N. (2005) 'Cognitive capitalism and contested campus' in J. Cox and J. Krysa (eds.) *Engineering culture: On the author as digital producer*. Brooklyn NY: Autonomedia [http://kurator.org/media/uploads/publications/DB02/DyerWitheford.pdf].

Dyer-Witheford, N. (2006) 'Species being and the new commonism: Notes on an interrupted cycle of struggle', *The Commoner*, 11 [http://www.commoner.org.uk/11witheford.pdf].

Dyer-Witheford, N. (2007) 'Commonism', *Turbulence* 1 [http://turbulence.org.uk/turbulence-1/commonism/].

Endnotes (2010) 'Communisation and value-form theory' #2 [http://endnotes.org.uk/articles/4].

Finlayson, G. & Hayward, D. (2010) 'Education towards heteronomy: A critical analysis of the reform of UK universities since 1978' [http://bit.ly/aJOJB1].

Gorz, A. (1992) *Farewell to the working class, an essay on post industrial socialism*. London and Sydney: Pluto Press.

Hardt, M. and A. Negri (2000) *Empire*. Cambridge MA and London: Harvard University Press.

Lessig, L. (2001) *The future of ideas*. New York: Random House.

Lessig, L. (2004) *Free culture*. New York: The Penguin Press.

Levidow, L. (2002) 'Marketising higher education: Neoliberal strategies and counter-strategies', in K. Robins and F. Webster (eds.) *The virtual university? Knowledge, markets and management.* Oxford: Oxford University Press.

Linebaugh, P. (2009) *The Magna Carta manifesto: Liberty and commons for all*. Berkeley and Los Angeles: University of California Press.

Marx, K. (1990) *Capital Vol 1*. London: Penguin.

Marx, K. (1993) *Grundrisse: Foundations of the critique of political economy.* London: Penguin.

Marx, K. and Engels, F. (1998) *The German ideology, including theses on Feuerbach and introduction to the critique of political economy.* New York: Prometheus Books.

Meiksins-Wood, E. (2002) *The origin of capitalism: A longer view.* London: Verso.

Midnight Notes Collective and Friends (2009) 'Promissory notes: From crisis to commons' [http://www.midnightnotes.org/Promissory%20Notes.pdf].

Neocleous, M. (2003) 'Staging power: Marx, Hobbes and the personification of capital', *Law and Critique*, 14: 147-165

Noble, D. F. (1998) 'Digital diploma mills: The automation of higher education', *First Monday,* 3 (1).

Pederson, M. (2010) 'Property, commoning and the politics of free software', *The Commoner*, 14.

P2P University [http://p2pu.org/en/].

Postone, M. (1993) *Time, labour and social domination: A reinterpretation of Marx's critical theory*. Cambridge: Cambridge University Press.

Rose, J. (2001) *The intellectual life of the British working classes*. New Haven, CT: Yale University Press.

Roggero, G. (2011) *The production of living knowledge: The crisis of the univeristy and the transformation of labour in Europe and North America*. Philadelphia: Temple University Press.

Siemens, G. (2004) 'Connectivism: A learning theory for the digital age', [http://www.elearnspace.org/Articles/connectivism.htm].

Söderberg, J. (2007) *Hacking capitalism. The free and open source software movement.* Oxford: Routledge.

Stallman, R. (2002) *Free software, free society: Selected essays of Richard Stallman*. Boston: GNU Press.

Thody, A. (2012) 'Revolution as evolution in nineteenth century higher education' in M. Neary, H. Stevenson and Les Bell (eds.) *Towards teaching in public: Making the modern university.* London and New York: Continuum.

Tronti, M. (1964) 'Lenin in England' [http://libcom.org/library/lenin-in-england-mario-tronti].

Tronti, M. (1965) 'Strategy of refusal' [http://libcom.org/library/strategy-refusal-mario-tronti].

Tronti, M. (1971) 'The factory and society', quoted in S. Wright (2002) *Storming heaven: Class composition and struggle in italian autonomist Marxism*. London and New York: Pluto Press.

Wikipedia: Open Educational Resources [http://en.wikipedia.org/wiki/Open_educational_resources].

Winn, J. (2012) *Open education: From the freedom of things to the freedom of people*, in M. Neary, H. Stevenson and Les Bell (eds.) *Towards Teaching in public: Making the modern university.* London and New York: Continuum.

Wright, S. (2002) *Storming heaven: Class composition and struggle in Italian autonomist Marxism*. London: Pluto Press.

Zizek, S. (2009) 'How to begin from the beginning', *New Left Review*, May – June, 57 [http://www.newleftreview.org/?view=2779].

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An experiment in free, co-operative higher education

The Social Science Centre (SSC) organizes free higher education in Lincoln and is run by its members. The SSC is a co-operative and was formally constituted in May 2011 with help from the local Co-operative Development Agency. There is no fee for learning or teaching, but most members voluntarily contribute to the Centre either financially or with their time. No one at the Centre receives a salary and all contributions are used to run the SSC. When students leave the SSC they will receive an award at higher education level. This award will be recognized and validated by the scholars who make up the SSC, as well as by our associate external members – academics around the world who act as our expert reviewers The SSC has no formal connection with any higher education institution, but attempts to work closely with like-minded organizations in the city. We currently have twenty-five members and are actively recruiting for this year's programmes.

The energy to create the SSC reached critical mass when we saw the writing on the wall for the funding of the social sciences and the further indenture of people wanting an education. The Browne Review was in full swing, Middlesex had lost its Philosophy department, and we saw an 'urgent need' to build an alternative model of higher education that wasn't subject to the discipline of debt and the market, while at the same time protesting against the Coalition government's actions and fighting for funding to be restored. We also drew inspiration from the network of Social Centres that exist across Europe and the UK and thought that the SSC might be a model for a similar network of centres for higher education. That is still our hope.

In May 2013, we held our second AGM, which marked two years as a formally constituted co-operative for higher education. Over the last year, we've run an entry-level evening class called 'The Social Science Imagination' (after C. Wright-Mills's 1959 book *The Sociological Imagination*), which is an open course run by and for people who want to develop a critical understanding of the social world through social-scientific inquiry. The class proceeds from scholars' everyday problematics to theoretical critique. Through this emerging curriculum, we take up Mills's key challenge: how can individuals who appear powerless change and transform wider social structures in ways that are progressive and humanizing? Why does it matter that we learn to make links between our own private troubles and our more collective public issues? And how can we contextualize this work, as Mills suggests we must, as social theory and social history? The wide range of issues that emerged from this were documented, compiled, collectively coded and reorganized to form the basis for the coming year's programme of study.

Underpinning 'The Social Science Imagination' is the SSC's pedagogical approach, which attempts to fix the dysfunctional relationship between teaching and research that constitutes the core of higher education. We want to find ways to reconnect research and teaching, while at the same time removing the distinction between students and academics, seeing them both instead as scholars in the pursuit of creating new knowledge. We decided early on to refer to all members of the Centre as 'scholars' in an attempt to trouble the traditional relations of power between academics and students. Our experience within the SSC has confirmed our belief that teachers and students have much to learn from each other, and that calling these roles into question allows people to become aware of their position of privilege and/or subordination, and thus begins to open up possibilities to build more critically transformative learning relationships.

In addition to the Social Science Imagination course, we also run a photography project called 'Our Place, Our Priorities', which is a collaboration with the residents of the Pathways Centre, Lincoln. The aim of the project is to promote active citizenship by simultaneously celebrating the city and identifying priorities for change within it. We also organize periodic public seminars on themes of critical and radical education and politics, and from September 2013 a monthly public seminar series.

Building and running the SSC is not without its difficulties. We are a social, political project that aims to be inclusive and appeal to those still at school and

school leavers as well as retirees, part-time workers and the unemployed. How we communicate our work to different people and how we negotiate difference and dissent among ourselves are recurring questions. We are based in a small city; while there are fewer existing networks of solidarity than might exist in larger cities, there is also an intimacy and a proximity that provide possibilities for associational networks that might be diffused in larger cities. Most of us work full-time and cannot give the time to the SSC that we would like to. Without the material basis on which to work and study full-time at the SSC, we have to think creatively about the form and nature of education practised within the SSC. Do we have courses, semesters, students, teachers and assessments? What do they look like? How does it all work?

So, from the start, the SSC was a political project that took a particular organizational form. We are not all Marxists; nevertheless some of us have been inspired by Marx's recognition that workers' co-operatives 'attack the groundwork' of capitalism. As 'knowledge workers' in the 'knowledge economy', control over the production of knowledge – and its institutional forms and organizing principles – is what gives the SSC its criticality, allowing for experimentation with different ways of teaching, learning, reflecting on our past, and creating our future. Recognizing ourselves as social individuals, our organizing principle is that we are producers of knowledge who own and control the means of our own knowledge production.

We also therefore recognize that cooperation can't be sustained in isolation and that developing solidarity with other co-operatives, locally, nationally and internationally, must be part of our long-term vision. We've participated in the first Free University Network meetings and invited the People's Political Economy project from Oxford to share their experience at our second AGM. We've also been in talks with the Co-operative College about developing a model for cooperative higher education.

It was always our intention that the SSC would become international in scope. We imagined that 'associate members' living anywhere in the world would want to join the SSC and carry it forward, helping develop cooperative higher education and acting as peers to the members who run it day to day. Associates might support the SSC financially, but also through offering to assess work, provide specialist advice, and develop the cooperative model itself. As we write, we're trying to reach out for new members to work and study with us. We also hope to inspire thinking about the potential of the SSC as a model for something similar in your local area, which reflects your own scholarly interests.

Members of the Social Science Centre, Lincoln, http://socialsciencecentre.org.uk

Benjamin's international reception
18–20 September 2013, Berlin

Gudrun Schwarz, the main organizer of the recent symposium of the Walter Benjamin Archive in the Akademie der Künste, has been thinking about it – she says – for eight years, talking about it for six, and savouring its practical organization for the last four. Cai-Yong Wang from Fudan University, Shangai, opened by giving a summary of Benjamin's reception in China. The first translation (his own, of the *Artwork* essay) appeared in 1992, selling 3,000 copies in the first two months. Since then Benjamin has become one of the most widely read Western thinkers in China. Wang talked of Benjamin's *Strom* (current), referring both to his rapid academic accreditation and to the thematics of modernity and modernization that constitute the main attraction for the 'Chinese audience'. In China, as in some other countries, Benjamin tends however, as Wang acknowledged, to be translated from English editions.

Seong Man Choi, from the Ewha University of Seoul, addressed Benjamin's reception in South Korea. Choi, who among others is working on a forthcoming fifteen-volume edition of Benjamin's collected works (eight of which are already available), told us that the Americans brought Benjamin to South Korea after the Korean War: the first translations of the *Artwork* essay date back to the 1970s, when the Frankfurt School also reached Seoul. Whereas subsequent globalization was accompanied by a loss of interest both in the humanities and in Benjamin, the influence of philosophers like Žižek, Agamben and Butler refocused attention

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Chapter 14

Student as Producer is Hacking the University

Joss Winn and Dean Lockwood

EDITORS' INTRODUCTION

The previous chapters in Part II were concerned with the interaction between designers and design principles within disciplinary contexts. This chapter takes our understanding of context further, to encompass the teaching and learning philosophy and institutional strategy within which design takes place. Drawing on the example of the 'Student as Producer' project at the University of Lincoln, UK, the authors explain how curriculum design is expected to be informed by a view of the student as an active contributor to and collaborator in the knowledge creation process. When students are engaged to such an extent, they bring with them use of technology as a norm. Designs for radical pedagogy, facilitated by technology, need to consider their impact on the roles of the different actors involved. So, at Lincoln, staff and students have been encouraged to explore and experiment with technology together, with a particular focus on how openness is expressed and enacted within today's technologically rich environment. Here design is seen as a truly collaborative venture that brings staff and students together.

A dysfunctional relationship

The Centre for Educational Research and Development (CERD) was created in 2007 to lead the University of Lincoln's teaching and learning strategy, run post-graduate courses for the study of education and practice of teaching, and support the academic use of technology across the university. Since its inception, the theme at the heart of the Centre's work has been to reconnect research and teaching, the core activities of universities. Central to this objective is an attempt to reconfigure the dysfunctional relationship between teaching and research in higher education and a conviction that this can be best achieved by rethinking the relationship between student and academic. We call this project 'Student as Producer' and, since late 2010, Student as Producer (http://studentasproducer.lincoln.ac.uk) has been adopted as the de facto teaching and learning strategy for the University of Lincoln.

As such, Student as Producer is a university-wide initiative, which aims to construct a productive and progressive pedagogical framework through a re-engineering of the relationship between research and teaching and a reappraisal of the relationship between academics and students. Research-engaged teaching and learning is now 'an institutional priority at the University of Lincoln, making it the dominant paradigm for all aspects of curriculum design and delivery, and the central pedagogical principle that informs other aspects of the University's strategic planning.' (Student as Producer 2012)

Under the direction of Professor Mike Neary, Dean of Teaching and Learning, much of the work of CERD has been informed by the conviction that students should become producers rather than consumers of knowledge and of their own social world. By engaging students and academics as collaborators, we can refashion and reassert the very idea of the university.

The argument for Student as Producer has been developed through a number of publications that assert that students can and should be producers of their social world by being collaborators in the processes of research, teaching and learning (Neary 2008; Neary and Winn 2009; Neary 2010; Neary and Hagyard 2010). Student as Producer has a radically democratic agenda, valuing critique, speculative thinking, openness and a form of learning that aims to transform the social context so that students become the subjects rather than objects of history – individuals who make history and personify knowledge. Student as Producer is not simply a project to transform and improve the 'student experience' but aspires to a paradigm shift in how knowledge is produced, where the traditional student and teacher roles are 'interrupted' through close collaboration, recognizing that both teachers and students have much to learn from each other. Student as Producer aims to ensure that theory and practice are understood as praxis, i.e. a process of 'reflection and action upon the world in order to transform it' (Freire 2000: 51).

A critical, social and historical understanding of the university and the roles of researcher, teacher and student inform these aspirations and objectives. They draw on radical moments in the history of the university as well as looking forward to possibilities of what the university can become. Student as Producer is not dependent on technology but rather on the quality of the relationship between teacher and student. However, the extent to which technology can support, improve and even positively disrupt this relationship is key.

An important aspect of the project is redesigning the university's administrative and bureaucratic processes so that they align with and support the principles of Student as Producer. This is an organic process intended to engage administrative staff, academics and students in the development of curricula and course validation. As part of their curriculum design, academics are asked to:

- show ways in which the courses will include research-engaged teaching;
- consider issues of space and spatiality in their teaching practice;
- describe how they will write up their teaching as a scholarly research project;

- illustrate the ways in which they will use appropriate web technologies;
- demonstrate the extent to which students are involved in the design and delivery of programmes and courses, and
- show how the course enables students to see themselves having a role in creating their own future, in terms of employment, and to make a progressive contribution to society (University of Lincoln 2010).

Student as Producer regards students as expert users of the university's facilities and, following examples in other sectors, recognizes that student/user engagement is essential in the design and delivery of their own programmes and modules, i.e. the design of the idea of the university.

Student as Producer is not dependent on technology but recognizes that it is deeply embedded in modern university life, supporting, for example, the increasingly collaborative nature of research through discipline-specific Virtual Research Environments and the creation of Personal Learning Environments where teachers and students use technologies pragmatically, appropriate to their needs and capacities. Likewise, technology can be used to understand, map and visualize the uses of physical and virtual space and underwrites critical institutional functions penetrating deep into the overall 'learning landscape' of the university (Neary and Saunders 2011). Arguably, networked technology is now ingrained in the very 'idea of the university' and the social production of knowledge. It is not a matter of asking, 'What is the role of the Web in higher education?' but rather, 'What is the role of the university in the world of Web?' (Powell 2009).

Student as Producer recognizes what *The Edgeless University* called a 'time of maximum uncertainty and time for creative possibility between the ending of the way things have been and the beginning of the way they will be' (Bradwell 2009: 63). At a time when the higher education sector is being privatized and students are expected to assume the role of consumer, Student as Producer aims to provide students with a more critical, more historically and socially informed, experience of university life which extends beyond their formal studies to engage with the role of the university, and therefore their own role, in society. Pedagogically, this is through the idea of 'excess' where students are anticipated to become *more* than just student-consumers during their course of research and study (Neary and Hagyard 2010).

Through this 'pedagogy of excess', the organizing principle of university life is being redressed, creating a teaching, learning and research environment which promotes the values of experimentation, openness and creativity, engenders equity among academics and students and thereby offers an opportunity to reconstruct the student as producer and academic as collaborator. In an anticipated environment where knowledge is free, the roles of the educator and the institution necessarily change. The educator is no longer a delivery vehicle and the institution becomes a landscape for the production and construction of a mass intellect in commons, a porous, networked space of abundance, offering an experience that is in excess of what students might find elsewhere.

The remaining part of this chapter provides two case studies of how Student as Producer is infiltrating quite different areas of university life at Lincoln. The first discusses Student as Producer in the context of Deleuze and rhizomatic curriculum design, while the second looks at how the project is being applied to the development of an open institutional infrastructure, in which computer science students are redesigning and developing the tools used for research, teaching and learning.

Rhizomatic pedagogy

Gilles Deleuze, in the nineties, suggested that pedagogy would soon be caught up in an incessant 'decoding' and 'recoding' as capitalism mutated to seize upon the potential that digital flows of communication offered for unleashing energies hitherto accumulated in closed institutional sites. Notwithstanding digitality's crucial role in this mutation, Deleuze maintained that 'machines don't explain anything, you have to analyze the collective arrangements of which the machines are just one component' (1995: 175). A key question such an analysis would address is whether the exigencies of communication in this emergent situation will lead also to new 'lines of flight', new forms of resistance. If so, resistance would be more likely to turn around 'creation' rather than 'communication': 'Creating has always been something different from communicating. The key thing may be to create vacuoles of non-communication, circuit breakers, so we can elude control' (ibid.).

In a 2011 Student as Producer project, drawing on a CERD fund dedicated to enabling innovations in curriculum design, Lincoln School of Media lecturers Rob Coley, Dean Lockwood and Adam O'Meara embarked upon an experiment inspired by this thought of the interruptive vacuole with a level 2 Photography Projects module (taken, on this occasion, by 42 students). In hacking parlance, we might call this an 'exploit', a move designed to turn a system to one's own advantage and open up the possibility of something new happening. Consonant with the basic principles of Student as Producer outlined above, the design of the course was conceived as directly research-engaged. In this instance, tutors brought students' attention to bear on the concept of the rhizome – key to much of the tutors' own independent research – taken from Deleuze's work with Félix Guattari (Deleuze and Guattari 2004), suggesting that the semester's work could constitute a serious collaborative attempt to generate, in the encounter between this conceptual adventure and their practical work, new and original lines of enquiry for photographic image production.

There is insufficient space here to fully unfold the implications of the rhizome concept but, briefly, it indicates an attempt to break away from Western hierarchical – or 'arborescent' – models which encourage us to think in terms of the logic of representation and reproduction of already given structures. For Deleuze and Guattari, the rhizome – a flat, horizontal root-system – suggests the immanent, transformative connectedness of the world and constitutes a corrective to an

arborescent logic of stand-alone 'trees'. The rhizome privileges the connecting line rather than the isolated point. It is an endlessly proliferating assemblage of lines which connect from the middle. Connectivity, without centre, boundaries, beginning or end, is the first principle of the rhizome. Related principles are heterogeneity and multiplicity. The rhizome ceaselessly self-differs. Further, it expresses a cartographic logic of production rather than a 'tracing' logic of reproduction. Constructed on the basis of fostering new connections, 'what distinguishes the map from the tracing is that it is entirely oriented toward an experimentation in contact with the real' (Deleuze and Guattari 2004: 13). In the rhizomatic, cartographic encounter, when tutor and student, and tutor/student and the real, come into contact, the world emerges anew in a process of mutual 'becoming'. Nothing is represented. Nothing is communicated, only created.

The module tutors envisaged that the rhizome concept would enable themselves and students, with photographic image production as the pretext, to connect up to each other and to the real in exciting ways which obviously could not be fully stipulated at the commencement of the project. It was hoped that the use of available digital technology would facilitate this – students were required to contribute ideas to a blog set up for the purpose of the project and encouraged to share and upload their work to Flickr, Vimeo and other online resources. It should be noted that tutors did not promote an uncritical embrace of the digital. The emancipatory potential of digital technologies is precisely something to be struggled for, part of what is at stake.

It is fair to say that students experienced some difficulty in grasping what was an unfamiliar way of framing our thinking and doing. In particular, there was much discussion of their anxieties with regard to how, given the foregrounding of rhizomatic connection and becoming, individual achievements would be recognized and assessed. Assurances were given that reasonable efforts to participate in the project would in themselves merit a pass mark as a baseline, regardless of 'quality' of final product, thus providing a safety net. However, tutors did not set out to suppress dissonant views, seeing these as a necessary part of the project. Connectivity should not imply consensus. The tutors agree with those running similar projects (which have taken the rhizome as the organizing principle for pedagogical experiments) that the key to such experiments lies in the insight that 'the community *is* the curriculum' (Cormier 2008). Where they differ, however, is in their greater insistence on the *political* valency of rhizomatic pedagogies. It is in this respect that elements of conflict should be welcomed. The community-curriculum learns in a moment of crisis, surrendering the consolation of reproduced knowledge. If nothing is at stake, is anything truly learnt? Rhizomatic pedagogy embraces collective movement of thought, generating new styles of thinking. Mobile thought is creation from the middle, in and through others as mediators. This perspective shatters the complacency of received truths, common knowledge. It demands a community of mediators who connect in order to make things happen, to invent in the space between individuals, rather than merely to agree. The tutors hoped that what would transpire would be a

collective, intervallic spirit of invention fostering an immanent transcendence of traditional tutor and student roles and relationships.

The project evolved to encompass group outings to make images and stitch them together as a 'pack', an exploit from which a new assemblage promised to emerge within the old. The pack generated its ideas and images, culminating in a provocative exhibition in a public space in Lincoln city centre on a busy afternoon. In the time since the project came to an end, sufficient positive feedback has been gathered from both tutors and students to merit further investigation of this approach to teaching and learning. The experiment has been a frequent talking point for the students who were involved and its resonances continue to be felt – something new most certainly occurred.

In this instance, rhizomatic pedagogy aimed to foster a rhizomatic photographic practice, a way of producing images collectively that disrupts the traditional representational paradigm of photography. This has to be as much about exploring the techniques, methods, research ethos and social context of image production as about the eventual images produced. Throughout, process was foregrounded over product, which meant frustrating the expectations of some students. In relation to technology, tutors proposed that a tutor–student rhizome might hack photography as a kind of serious play rather than maintain a strictly instrumental orientation to the camera and associated conventions. To be more specific, it was deemed imperative for the project to critically interrogate the default assumptions tutors and students have with regard to how to teach and learn photography. Expectations of both parties have typically revolved around the notion that an individual will be instrumentally orientated towards the camera as a means of representing some aspect of the external world as skilfully as possible in order to be rewarded with a good grade. The rhizome project, tutors suggested, would work with different assumptions. These are that the group finds itself in the middle of an emergent situation, to which it critically attends by perceiving, thinking and making images with machines, i.e. cameras. It also reflexively attends to its own assumptions and expectations and the logic inherent in the camera, because these also are connected and germane to the situation. In particular, the digital camera is to be conceived not as an inert, neutral and complete technological tool distinct from its human operator, but rather as an element in a mobile collective arrangement or assemblage which expresses what can be done and which, in the context of Deleuze's concerns about the mutations of power, both controls and offers certain potential for resistance: 'The concept of assemblage shows us how institutions, organizations, bodies, practices and habits make and unmake each other, intersecting and transforming: creating territories and then unmaking them, de-territorializing, opening lines of flight as a possibility of any assemblage, but also shutting them down' (Macgregor Wise 2005: 86). To engage in photography education could be, under the auspices of the rhizome, to hack into and re-invent the machinic assemblages of which we are components. The notion of exploiting lines of flight emerging immanently

within machinic assemblages can feed into the Student as Producer strategy and contribute to a culture of genuine creation as opposed to the communication of pre-digested information.

An academic commons

In 2009, in a book chapter called 'Student as Producer', Mike Neary and Joss Winn offered a historical overview of the development of the modern university and more recent attempts in the US and UK to work against the growing disjuncture between research and teaching. In the conclusion to that chapter, the authors specifically drew on the activities of the Free Culture movement as an exemplary model for how the disconnect between research and teaching, and the work of academics and students, might be overcome and reorganized around a different conception of *work* and *property*, ideas central to the meaning of 'openness' or, rather, an 'academic commons'.

Our approach to institutional openness at Lincoln has been to recover and develop the connection between the values of openness and the values of academic life. As such, there is no policy or ongoing discussion concerning openness, but rather we have seen Student as Producer as a vehicle for demonstrating how the values and practices of openness are historically grounded in the work of universities and the academic life, which Student as Producer seeks to promote, challenge and develop in a radical way.

In 2008, the CERD established the Learning Lab, an autonomously run virtual space for experimenting with and evaluating open source software that may be of value to research, teaching and learning at the university. One of the applications we first trialled on the Learning Lab server was the Open Journal Systems software, which was installed to help a group of students and staff develop an open access journal of Occasional Working Papers. While relatively short-lived due to staff and students leaving, we were able to support those involved by making the technology easily available to them and promoting their work within the context of what was being called the Academic Commons. More recently, the platform has been adopted by postgraduate students who intend to relaunch the student journal, *Neo*.

Running on an open source server, the Learning Lab allowed for much experimentation with and the adoption of different types of open source software, including Mahara (e-Portfolios), MediaWiki, Webpa-OS (peer assessment), Xerte (learning materials), feed2js (RSS to Javascript conversion), OpenSim (virtual worlds) and, most significantly, the open source blogging software, WordPress Multi-User.

Although from one perspective WordPress is simply an open source publishing platform, we intentionally configured it so that it would be open for any student or member of staff to create a modern, content-managed website to communicate their work to the public. There is no gatekeeper policy, but rather a set of community guidelines, similar to other online community guidelines.

The university's own acceptable use policy was also revised around this time and explicitly promotes and encourages the use of web applications. Within a year, WordPress was regarded as a technologically sound piece of software and widely used by teachers, students, researchers and university departments. As such, it was formally adopted by the university and now hosts and manages over 1000 websites at http://blogs.lincoln.ac.uk

The freedom we have through running our own server(s) at the university, as well as a progressive academic environment in which to work, allowed colleagues in CERD and the Library to spend over a year experimenting with the WordPress open source software and use it as a platform for technological enquiry and innovation, rather than simply a blogging tool. This began a bottom-up approach to innovation through openness, which was upheld and concurrently developed both theoretically in our published writing and strategically in the development of Student as Producer as the newly emerging teaching and learning strategy. In essence, as the university was developing a more progressive teaching and learning strategy which promoted the idea of openness, collaboration and that both teachers and students have much to learn from each other, a more progressive use of technology to support research, teaching and learning was also being developed through the use of open source software, the principles of open access, the promotion of open educational resources and, most recently, the release of open data. Each tactic supported and enabled the other.

Using Student as Producer as the overarching framework, CERD, the Library and ICT Services worked on a series of funded projects that had students and openness as their central theme:

- JISCPress (2009–10) allowed us to employ a second-year undergraduate student in computer science, to help develop an open source platform for publishing and discussing documents in detail.
- With ChemistryFM (2009–10), an Open Educational Resources project, we provided bursaries to two students to work with academic staff to develop and release an entire module of open educational resources (OER) for a Level One course in Chemistry for Forensic Scientists.
- For the Total Recal project (2010–11), two students working part-time in central ICT services worked on a rapid innovation project to develop a 'space-time' calendaring service at the university, resulting in open source code and the creation of a large data store which became the basis for our institutional open data project, http://data.lincoln.ac.uk.

The provision of these student posts in ICT was largely the result of the growing interest in Student as Producer at the university, reaching across not only academic departments but also the central service departments, too. The Head of ICT took on board the values of openness and collaboration between staff and students that Student as Producer promotes by employing students to act as 'critical

friends' to the department and work with existing staff on the development of new online services. These students were encouraged to use the WordPress platform to blog about their experience in ICT. This intentionally disruptive influence of students working alongside staff began to change the culture of the ICT department and led to the development and adoption of a number of online services which promote a more open and transparent environment at the university as well as the introduction of new technologies and a much greater willingness and freedom to engage in research and development projects.

With students in trusted positions in ICT, collaborating with staff in CERD and the Library, we were able to develop our ideas beyond the original Learning Lab environment and further our experiments with technology at the university. This led to Jerome, a summer 'un-project' of 2010, where we explored new ways of exposing, searching and using Library information to create a better way of using Library services. Jerome was later funded by Joint Information Systems Committee (JISC) as our third 'rapid innovation' project in just over a year and, like Total Recal, made a huge contribution to our experience and understanding of new technologies such as MongoDB, the open source NoSQL database software, and data-driven development of Application Programming Interfaces (APIs).

Both Jerome and Total Recal contributed large amounts of data to what has become http://data.lincoln.ac.uk and the development of this service also led to the development of a new access and identity management (AIM) system at the university, created by students. These students, Alex Bilbie and Nick Jackson, also developed the university's new Common Web Design, a modern framework for new university websites, now widely used across our services. By working together on the research and development of components of university infrastructure, we have developed an open source 'toolkit' for both staff and student developers, including data storage, authentication and a presentation layer, allowing us to rapidly prototype and implement new services.

This successful working relationship between CERD, the Library and ICT Services, three key departments in the university, has been fundamental to building an academic commons, in which staff and students work together on open technologies to enable and support university life. It has been supported by senior management such as the Dean of Teaching and Learning, the Head of ICT and the university librarian, but driven by enthusiastic staff and students who are given access to open source tools and open data. That openness can also be conceived as a 'public good' is recognized and valued by all involved, but is not the primary underlying motivation. Rather, the progressive and well developed pedagogical project of Student as Producer has provided us with a framework with which to involve students, situate distinctive projects when writing funding bids and receive recognition *within* the institution for the recognition we have attracted *outside* the institution for our approach.

This recognition has more recently led to the university's committees approving the formation of LNCD (http://lncd.lincoln.ac.uk/), a new inclusive

group which succeeds the Learning Lab and is informed by the progressive ideas of Student as Producer so as to engender critical, digitally literate staff and students. Core principles of the group are that we recognize students and staff have much to learn from each other and that students can be agents of change in the use of technology for education. LNCD consolidates and furthers ongoing collaborative work between the CERD, the Library and ICT Services and extends an open invitation to staff and students from across the university to contribute to the group.

A graduate intern post ensures that the student perspective remains core to the group's outlook. We also continue to employ students and recent graduates as core members of LNCD. In its first year, LNCD has a budget of £20,000, much of which is dispersed to students and staff who submit proposals for projects around the theme of 'technology for education'. These are available on a competitive basis in the form of grants and bursaries providing an incentive to staff and students to get involved in the development, support and critique of how technology is used in higher education. Examples of funded projects include: a tool that supports anonymous Q&A in class, encouraging less confident students to participate; a project to build a 3D printer and investigate the uses of this new technology across different subject disciplines; another project is assessing the use of WordPress as an ePortfolio tool for health and social care students; and another is building a robot for Open Day demonstrations. Each of these small projects is a genuinely collaborative undertaking between students and teachers. Furthermore, we invite third-year students from the School of Computing to propose dissertation projects based around the use of our toolkit and data.lincoln.ac.uk, allowing us to mentor students as they develop our work further. This is very gratifying and one of these students has recently been employed by the university, recognizing the contribution he can make to the development of new online tools for the university community.

In the setting up of the LNCD group, we have tried to ensure that openness remains a distinct theme throughout our work, both in the tools we use and the way we organize ourselves as a distributed, collegial group: 'LNCD is Not a Central Development group!'

Hacking the university

Work on Student as Producer remains very much at the heart of what we do. It is both an institutional strategy and a three-year project funded by the Higher Education Academy, now in its second year. It has been very well received across the university and the sector, and is being embedded into the curriculum design process and teacher education programmes we run.

Although internally consistent as a pedagogical theory, Student as Producer is being interpreted and adopted by staff and students at the University of Lincoln in different ways. Some, like Dean and his colleagues, recognize its basis in revolutionary praxis (drawing on the work of luminaries such as Walter

Benjamin and other avant-garde Marxist writers, and the philosophy of Deleuze and others), while other colleagues, working in professional services, see it as a way to engage students in the critique and redevelopment of institution-wide services. All academics, however, recognize Student as Producer as a framework by which teaching and learning, including curriculum development, can become a much more collaborative effort.

In the case of LNCD and the core contributors of the group from CERD, the Library and ICT Services, we have framed Student as Producer in both our advocacy of the tools and methods by which the Free Culture movement operates and in a re-examination of the role of students as developers or 'hackers' in the university.

We see our work as fundamentally a form of hacking the academy, using and writing open source software and producing open data with which to 'hack the university' and create useful services and effect positive technological interventions in the research, teaching and learning environment of the university. From the perspective of a rhizomatic pedagogy, also, projects can be conceived as hacking exploits, a means to effect a revolutionary becoming for which revolution (as for Deleuze) is never actual, but always virtual, a matter of unfolding new potential, multiplying points of entry to, and spontaneously surfing the propensities of, a situation.

Just as we recognized in our original book chapter that the Free Culture movement owes much to its academic origins, we also recognized that 'an exemplar alternative organizing principle is already proliferating in universities in the form of open, networked collaborative initiatives' (Neary and Winn 2009). The LNCD group is an attempt to develop that and, as such, understands that the origins of much of its work to date is in the hacking culture that grew out of MIT, Carnegie Mellon University and University of California, Berkeley in the 1970 and 1980s, the academic culture that developed much of the key technology of today's Internet.

When understood from this point of view, LNCD, as a Student as Producer initiative, is attempting to develop a culture for staff and students based on the key academic values that motivated the early academic hacker culture: autonomy, the sharing of knowledge and creative output, transparency through peer-review, and peer-recognition based on merit. We are mindful that this contributes towards a greater strategic priority of reconfiguring the nature of teaching and learning in higher education and encouraging students to become part of the academic project of the university and collaborators with academics in the production of knowledge and meaning.

This approach is grounded in the intellectual history and tradition of the modern university and visible in our understanding of and approach to openness at the University of Lincoln. However, for us, it is not the case that we are consciously working towards openness, but rather we work towards defending and maintaining the core academic values that recent notions of openness are largely derived from.

References

Bradwell, P. (2009) *The Edgeless University*. DEMOS. Online. Available at http://www.demos.co.uk/publications/the-edgeless-university (accessed 15 July 2012).

Cormier, D. (2008) 'Rhizomatic education: Community as curriculum', *Innovate*, 4 (5). Online. Available at http://www.innovateonline.info/index.php?view=article and id=550 (accessed 15 July 2012).

Deleuze, G. (1995) 'Control and becoming', in *Negotiations*, trans. Martin Joughin, New York: Columbia University Press.

Deleuze, G. and Guattari, F. (2004) *A Thousand Plateaus*, London: Continuum.

Freire, P. (2000) *Pedagogy of the Oppressed*, London: Continuum.

Macgregor Wise, J. (2005) 'Assemblage', in C.J. Stivale (ed.) *Gilles Deleuze: Key concepts*, Chesham: Acumen.

Neary, M. (2008) 'Student as producer – risk, responsibility and rich learning environments in higher education. Social purpose and creativity – integrating learning in the real world', in J. Barlow, G. Louw and M. Price (eds) *Proceedings of Learning and Teaching Conference 2008*, Brighton: University of Brighton Press.

Neary, M. (2010) 'Student as Producer: A pedagogy for the avant-garde', *Learning Exchange*, 1 (1).

Neary, M. and Hagyard, A. (2010) 'Pedagogy of excess: An alternative political economy of student life', in M. Molesworth, R. Scullion and E. Nixon (eds) *The Marketisation of Higher Education and the Student as Consumer*, Routledge: Abingdon.

Neary, M. and Saunders, G. (2011) 'Leadership and learning landscapes: the struggle for the idea of the university', *Higher Education Quarterly*, 65 (4): 333–52.

Neary, M. and Winn, J. (2009) 'The student as producer: reinventing the student experience in higher education' in L. Bell, H. Stevenson and M. Neary (eds) *The Future of Higher Education: Policy, pedagogy and the student experience*, London: Continuum.

Powell, A. (2009) 'The role of universities in a Web 2.0 world?', *eFoundations*, Online posting. 14 May 2009. http://efoundations.typepad.com/efoundations/2009/05/the-role-of-universities-in-a-web-20-world.html

Student as Producer (2012) Student as Producer Project Report, End of second year (2011–12). Online. http://studentasproducer.lincoln.ac.uk/2012/07/06/project-report-end-of-second-year-2011-2012/ (accessed 15 July 2012).

University of Lincoln (2010) 'Student as Producer User's Guide 2010–2011', Online. http://studentasproducer.lincoln.ac.uk/files/2010/11/user-guide.pdf (accessed 15 July 2012).

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Hacking in the University: Contesting the Valorisation of Academic Labour

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Abstract: In this article I argue for a different way of understanding the emergence of hacker culture. In doing so, I outline an account of 'the university' as an institution that provided the material and subsequent intellectual conditions that early hackers were drawn to and in which they worked. I argue that hacking was originally a form of academic labour that emerged out of the intensification and valorisation of scientific research within the institutional context of the university. The reproduction of hacking as a form of academic labour took place over many decades as academics and their institutions shifted from an ideal of unproductive, communal science to a more productive, entrepreneurial approach to the production of knowledge. A such, I view hacking as a peculiar, historically situated form of labour that arose out of the contradictions of the academy: vocation vs. profession; teaching vs. research; basic vs. applied research; research vs. development; private vs. public; war vs. peace; institutional autonomy vs. state dependence; scientific communalism vs. intellectual property.

Keywords: Hacking, Hackers, Academic Labour, Valorisation, History of Science, Marxism, Materialism

1. Introduction

In this article I argue for a different way of understanding the emergence of hacker culture. In doing so, I outline an account of 'the university' as an institution that provided the material and subsequent intellectual conditions that early hackers were drawn to and in which they worked.

It begins with a simple question: Why MIT and why 1959? There is general agreement among previous writers about when and where 'hacking' began but little attempt to explain *how*. Previous examinations have tended to explain hacking apart from the institutional context in which it developed, treating its origins in the academy as peripheral to more general categories of analysis such as an 'ethic' (Levy, 1984; Himanen 2001), 'activism' (Jordan 2008), 'counter-culture' (Turner 2006; Sterling 1992) or simply as part of a history of innovation (Raymond 1999). Even taken together, I believe such accounts present an incomplete history of hacker culture as it developed within the university during the 1960s and 1970s and largely ignore the conditions from which hacking emerged. By not fully accounting for the historical and material conditions out of which hacking emerged, they fail to offer an adequate approach to the study of hacking as an effective social and political movement, which is what compels many 'free software' and 'open source' hackers today (Kelty 2008; Soderberg 2008; Coleman 2012).

In this discussion of hacker culture, I argue that hacking was originally a form of academic labour that emerged out of the intensification and valorisation of scientific research within the institutional context of the university. Although first recognisable among a small group of academics and students in the early 1960s, the appearance of hacking should not be seen as suddenly occurring among a pioneering group of individuals but rather as an outcome of historical conditions that took place over many decades as academics and their institutions shifted from an ideal of "communism" or the "communal character of science" (Merton 1973, 273) to a more entrepreneurial approach to science (Etzkowitz 2001, 2002).

As Steven Shapin (2008) has shown, during the eighteenth century the State "increasingly gave systematic institutional form to the mobilisation of [scientific] expertise", and then in the nineteenth century science underwent a further transition from its characterisation as a per-

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sonal 'calling' to its transformation as labour or 'wage work' (Shapin 2008, 34). This dialectic between the 'disinterested', vocational and unproductive nature of academic work and its determinate form as productive paid work continues today, with some academics resisting the gradual influence of an 'entrepreneurial university' model, while others welcome it (Slaughter and Leslie 1997). As I will show, hackers and the first two decades of hacker culture are deeply embedded in this history and the institutional production of scientific knowledge.

My paper is roughly divided into two halves. The first half identifies early hackers as, broadly speaking, academics, working for and within 'the university', which I regard as a capitalist institution. Despite higher education being a well documented site of struggle between labour and capital, I try to show later in the paper that from its founding, MIT has been *the* model capitalist university. To begin with though, I provide a summary of my theoretical and methodological approach and show how it builds on examples of other scholarly work on hacking. In doing so, I also go beyond the main purpose of this paper by arguing for the dialectical, historical materialist study of hacking in general, and not just its emergence. The second part of this paper sketches, very briefly, the historical development of MIT up to and including the emergence of hacking in the early 1960s through to the early 1980s. What guides this narrative, which I outline in four parts, is the imperative of valorising academic labour in the service of capital. I draw on secondary sources and have tried to distil this research into a discussion of events that highlights the validity of my argument and offers both an interesting and compelling answer to my initial question: why MIT, why 1959?

What I outline in this paper should more properly be developed into a book, which would allow more space to include further research into the institutional history of science and first-hand interviews with some of the people involved. It would also allow more space to reflect on the growing range of research into hacking, especially from the Marxian perspective. What I hope to show within the limits of this paper is that a study of higher education institutions and their essential role in twentieth century capitalism has much to offer scholars of hacking, open source software and its derivative social movements. So far, writers have hinted at the significance of the academy in hacker culture, but barely touched the surface in uncovering the historical, material and social conditions from which hacking emerged and the effect this has had on the resulting free software, open source and free culture movements.

2. In, Against and Beyond a Liberal Critique within Liberalism

"[…] as the proletariat still acts, during the period of struggle for the overthrow of the old society, on the basis of that old society, and hence also still moves within political forms which more or less belong to it, it has not yet, during this period of struggle, attained its final constitution, and employs means for its liberation which after this liberation fall aside" *(Marx 1874).*

My interest here is in the early period of hacking, framed crudely by the arrival of the PDP-1 computer in 1961 and the departure of Richard Stallman from MIT in 1984. Therefore, I am interested in the emergence of a particular subjectivity ('hackers') and effort ('hacking') that was mostly confined to a small number of American universities, in particular MIT. During this period and especially during the 1960s and early 1970s, hackers were, by and large academics: teachers, researchers, research assistants and students, and as such hackers were a form of academic labour which emerged from and was subject to specific historical and material conditions. In taking this approach, I do not view hackers as mere instruments of the institutional context they were working in but as a class (i.e. the 'working class') that must sell its labour to the owners of the means of production (i.e. the 'capitalists'). This historically unique form of social relations can be summarised as the 'capital relation', in which labour acts in accordance with its interests as a class that is forced to reproduce itself as labour and thus reproduce the capital relation. This constant, naturalised confrontation with capital (i.e. 'work') gives rise to a series of contradictions in which labour finds itself a socially productive force producing outcomes that are increasingly appropriated for private gain. Attempts to resist, subvert, overcome and 'hack' the capital relation are a result of this contradiction and more generally referred to as 'working class struggle'. In this way, my approach is clearly in

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contrast to a reified understanding of hackers as individual "heroes" (Levy 1984), "wizards" (Hafner and Lyon 2003) and "real programmers" (Raymond 1999).

In taking this view, I also want to acknowledge earlier important studies of hackers and recognise that the motivations of individuals are complex, their subjectivities cannot easily be explained and an understanding of the day-to-day conditions of our lives can be approached in many ways. For example, Stephen Levy's (1984) *Hackers: Heroes of the Computer Revolution* employs a biographical approach. It is the classic text on hackers and the only attempt to develop a coherent history. However, its weakness is that it is a journalistic account of those 'heroes', making only cursory mention of the institutional, economic and political conditions they were working in. Levy was writing for a popular audience during Reagan's neo-liberal government which re-asserted traditional liberal ideals of individualism and individual responsibility. A fuller critique of Levy's account should recognise that the achievements of those 'heroes' might be better understood through a critique of neo-liberal social theory. Nevertheless, it is a fascinating account of the subjective motivations of the individuals involved and a pivotal book in the elaboration of hacker culture.

Similarly, Tim Jordan's (2008) *Hacking: Digital Media and Technological Determinism*, draws largely on literature written by hackers themselves and also presents them as heroic "warriors" and "hacktivists". Where Jordan differs to Levy is that he presents a positive account of hacking as a social and political project. What makes Jordan's book particularly valuable is his argument that "hacking both demands and refutes technological determinism" (Jordan 2008, 133). That is, hackers both reinforce the general sense of technological determinism in society and yet work towards its critique.

Christopher M. Kelty (2008) goes further to show how the values of free software hackers have extended to the broader 'free culture' movements such as Open Access and Creative Commons. He argues that the activity of geeks (among whom he includes hackers) can be conceived as a 'recursive public', "a public that is constituted by a shared concern for maintaining the means of association through which they come together as a public" (Kelty 2008, 28). Kelty's work is an important scholarly contribution to the study of hacker culture, with a particular focus on its cultural and political role in the development of the Internet since the mid-1990s. The identification of a 'recursive public' (recognised by other writers but not so eloquently defined) is especially perceptive and provides a useful analytical tool with which to understand current hacker culture and its antecedents inside and outside the academy. The limitation of his approach is that Kelty's 'recursive public' of geeks is reified, existing "independent of, and as a check on, constituted forms of power, which includes markets and corporations" (*ibid*). Kelty's 'recursive public' presents a positive conception of a reformist social movement, rather than conceiving 'recursion' as a historical social process through which political struggle is being generalised through the use of the Internet.

Along similar lines, E. Gabriella Coleman (2012) identifies hackers and hacking as a "liberal critique within liberalism". Just as Jordan and Kelty situate hackers within a contested world of their own making, Coleman identifies hackers as *in and against* a dominant political discourse. This suggests that the work of hackers can be understood as both struggle and critique. From this position, hacker culture might be seen as one of the most influential social movements in recent history, yet one which continues to struggle within a liberal, capitalist world-view, continually confronted by the organising principle of private property and wage work. By situating hacker culture as a liberal critique *within* liberalism, Coleman identifies the limits and the opportunities it presents within liberal capitalist society.

Johan Soderberg (2008) recognises hacking most clearly as a political project but only briefly mentions the formative period that concerns this paper. He rightly mentions the development of the telephone infrastructure, Norbert Wiener's theory of Cybernetics and its application in war-time funded research projects, which would eventually go on to develop the Internet. He also identifies the anti-war and appropriate technologies movements as examples of how personal computing grew out of 1960s counter-culture (Turner (2006) and Markoff (2005) provide fuller accounts of this). However, much of Soderberg's book is an examination of hacking using the categories of Marx's critique of political economy (capital, class, value, labour, commodities, etc.). In doing so, it is the only book-length study of hacking

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which attempts to methodologically examine hacking from the point of view of a critique *of* liberalism, rather than starting from a naturalised, liberal understanding of categories such as property, work, production and exchange. For this reason, it is an important book.

Jordan, Kelty, Coleman and Soderberg each go some way to show that a study of hacker culture can reveal to us an immanent critique of liberal capitalism: it is a culture that is both *in and against*; it is complicit but points to a way beyond capitalism through the development of intellectual and practical tools such as copyleft and the sharing and co-production of free software. Soderberg is most clear about this yet although he discusses hacking using the critical categories developed by Marx, he does not fully develop a negative critique of hacker culture. In the end, Soderberg's rich account of hacking as an emergent form of "play struggle" is an account of hacking as an emancipatory form of work. His account offers a Marxist critique from the standpoint of labour/hackers as the revolutionary subject in capitalism, rather than elaborating on Marx's own analysis of capital as the "automatic subject" (Marx 1976, 255) – a determinate logic of "self-valorising value". (Postone 1993, 75-77).

If, following Soderberg, we view early hackers as a form of labour it allows us to situate the role of hacking in the production of value and its relationship to capital. For Marx and later critical social theorists (e.g. Neary 1999; Clarke 1980; Postone 1993), labour within capitalism cannot be emancipatory as long as it remains the source of capitalist value. Marx's labour theory of value analyses labour in both its concrete and abstract forms. In its concrete physiological form, labour is the expenditure of human 'labour power', which when employed as labour produces 'use values' – products and services that have a utility. A hacker programming a PDP-10 computer is useful labour. When engaged productively, that is, when producing a use value for the purpose of exchange (e.g. computer programming in exchange for a government grant expressed in the form of a wage), the use value becomes a 'commodity' and the labour of an individual becomes a social form of labour that is measured by time (e.g. the duration of the government grant or employment contract).

Measured socially, an individual's labour is equated with all other forms of labour involved in the diversity of capitalist production. Marx referred to this form of labour as 'abstract labour', where the specific quality of labour is not simply its concrete physiological character but also its quantitative equivalence as *value*. With this analysis, Marx attempted to show how the substance of value is in fact abstract labour, measured socially by the amount of time required on average to produce a given use value for the purpose of exchange. When subject to this analysis, all types of labour in all their diversity are equated qualitatively, as labour power, and quantitatively, as value, the substance of which is abstract labour measured by socially necessary labour time. Thus labour becomes "a jelly of abstract human labour" (Marx 1978) employed in the capitalist production of value. Concrete mental and physical labour is but the form of *appearance* of abstract human labour and the work of hackers is but one form of this appearance.

Taking this approach, the work of hackers, as it emerged out of the research laboratories of a few American universities in the late 1950s, assumes a different character. We can view it both in its concrete appearance as mischievous, playful, meritocratic and at times, explicitly political, but mindful that as waged employment in a university, its primary purpose was to produce value. The development of this approach to the study of hackers and hacking should in fact result in a much stronger defence of the 'recursive public' of hacker culture as it is increasingly incorporated into neo-liberal policy and methods of valorisation as we have recently seen in policy statements on open science and open data (Foreign and Commonwealth Office 2013; Cabinet Office 2013).

Thus, building on Coleman and Soderberg's work, I also view hacking as an expression of political struggle; one that "still moves within [liberal-capitalist] political forms which more or less belong to it" (Marx 1874). However, these authors do not provide a critique of hacking from the standpoint of capital as the "automatic subject" which reproduces hacker culture. Once we take such an approach, the labour of hacking as a constituent part of capital and primary source of value can be understood as struggling against the conditions of its own making and therefore must itself be abolished rather than reified. At that point, "the means for

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its liberation […] fall aside" (Marx 1874) and the labour of hacking is wholly reconstituted as a different form of social wealth, beyond and no longer against the social relations of capital.

Whereas a liberal critique within liberalism finds 'difference' among the social relations of people (e.g. free vs. open source hackers; hackers vs. hacktivists), a negative, dialectical critique of liberalism uncovers the *contradictions* of capitalist social relations, here expressed by hacking as a form of labour that is increasingly anachronistic in contemporary society.

Such a critique is immanent because it locates those contradictions historically and temporally, rather than as 'natural', trans-historical conditions. In this way, hacking is located as a peculiar, historically situated form of labour that arose out of the contradictions of the academy: vocation vs. profession; teaching vs. research; basic vs. applied research; research vs. development; private vs. public; war vs. peace; institutional autonomy vs. state dependence; scientific communalism vs. intellectual property. This dialectical method of examination is based on the precondition of the *contradiction of labour* at the heart of capitalism and to which aspects of hacker culture can be understood as a negative response.

The contradiction of labour is that the development of science and technology increasingly renders obsolete earlier forms of organising production and therefore the human labour time required in the production of social wealth. Yet despite being increasingly anachronistic in the development of capitalism, it was Marx's contention that the direct expenditure of combined human intellectual and manual labour remains necessary to the development of capital as its only source of value. In short, capital remains dependent on the generalised mass of commodified labour (i.e. wage work) of the working class, which includes hackers, as a source of profit ('surplus value'), yet through the innovative use of science and technology capital increasingly renders that labour *superfluous* i.e. a general crisis of under-employment, or stated another way, a 'surplus population' (Postone 1993, 34). A dialectical approach to understanding the implications of this fundamental contradiction of capital is thus a *negative* critique in that it identifies what *is* and therefore what *is not* but *could be*. (Postone 1993, 89)

It follows that we can attempt to interpret aspects of hacking itself as an immanent critique, which is *in* and *against* the existing social conditions of liberal capitalist society and an attempt to move *beyond* the contradictions of capitalist society, which the labour of hackers reveals to us. Thus, by situating hacking in its liberal context and positing hacker culture as a *negative response* to the developing contradictions of modernity, hacking can be understood as a utopian form of labour that in seeking to overcome the organising principle of property and wage work, will abolish the compulsive necessity of itself.

3. The Valorisation of the Academy

Having argued that the earliest hackers were a form of academic labour, I now want to discuss the methods by which this labour was valorised and reproduced. To begin to unfold a history of hacking, in which Richard Stallman notably left the academy when confronted by the commercial enclosure of his work, we must understand at least four cumulative methods of valorisation within US higher education leading up to the early 1980s:

- the provision of 'land grants';
- the use of patents;
- the massive injection of war-time funding;
- and the development of venture capital.

Each of these methods points to the combined role of the State and of industry in the development of the university and therefore in the formation of hacker culture and any 'ethic' we may synthesise from that culture. By laying out this formative history, we can locate Stallman and other hackers *within* an institutional context that had been developing for many decades, and the development of techniques such as the General Public License (GPL) as a negative response *against* the conditions of their own formation.

Prior to outlining the specific methods of valorisation that have taken place within the US academy, I should briefly explain what I mean by this term.

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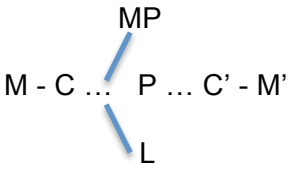
In his critique of political economy, Marx developed the "general formula of capital", M-C-M'. This refers to the way money (M) is advanced to purchase a commodity (C) in order to produce new commodities that are sold for a profit, creating more money. With the commodities purchased, 'the capitalist' buys the means of production (MP) and labour-power (L), transforming money capital into productive capital (P). As a generalised method of creating wealth, this process is historically unique to capitalism. The circuit of capitalist valorisation can be illustrated as:



In capitalist societies, the university is a means of production. In this context, the 'means of production' refers to the university's structural, technological and bureaucratic configuration for the production of knowledge. The university incorporates prior knowledge into its production process and the knowledge it produces is exchanged through teaching, consultancy, government grants, technology transfers, etc. and so offered as the object of labour elsewhere, resulting in capital accumulation (i.e. 'economic growth'). 'Labour-power' refers to creative human *potential*, which is applied as 'labour'. The individual exchanges their human 'labour-power' (itself a commodity) for a wage, and the required application of 'labour power' as 'labour' is defined by their employment contract. It is an individual's *potential* to undertake labour (i.e. 'labour-power') and the specific *application* of that potential within the given academic context that she works that we refer to ordinarily as 'labour'. Combining labour-power with the means of production produces a 'use-value' (e.g. a product or service) for the purpose of exchange upon which it will realise an 'exchange value', or more commonly 'value', in the form of money. The duality of having a use-value and an exchange-value is what defines a 'commodity'. Labour is itself such a commodity, and labour produces such commodities. In this way, labour is the original source of value and abstract labour, as discussed above, is the 'substance' of value.

In the context of the university, we might well ask, "who is the capitalist" in this valorisation process? On one level, as I will show, we can point to a combination of state and industry actors, as well as notable university leaders each of whom takes on the role of 'capitalist' by helping to ensure the advance of money capital and the production of commodities. However, on a more abstract, social level, as Marx described, 'capital' itself is the "automatic subject" (Marx 1976, 255-256), a determinate logic of valorisation, which 'the capitalist' personifies.

"It is only insofar as the appropriation of ever more wealth in the abstract is the sole motive behind his operations that he functions as a capitalist, i.e., as capital personified and endowed with consciousness and a will. Use-values must therefore never be treated as the immediate aim of the capitalist; nor must the profit on any single transaction. His aim is rather the unceasing movement of profit-making" (Marx 1976, 254).

In a mature, industrial capitalist economy, both the owners of capital (e.g. the state, trustees, governors) and wage-workers (e.g. teachers, cleaners, hackers) are subsumed under this totalising social imperative. Increases in productivity across society compel the owners of capital to act within the 'logic' of self-valorising value (i.e. capital) as they compete with other local, national and international capitals to produce value relative to the productivity of labour-power and the means of production combined. An initial increase in productivity will allow a greater amount of surplus value (i.e. profit) to be produced until those improvements in productivity have been generalised across society, and competing capitals undercut each other so as to win market share. This "iron law of competition" (Heinrich 2012, 108) compels the owners of capital (who are capital personified), to organise production around this imperative. By undertaking research and teaching students, universities are both subject to this

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production process and are vital to the improvement of productivity and labour elsewhere in society.

It is within this context of US capitalist industrialisation in the late 19th century that 'land grant' universities were established, setting in motion the widespread valorisation of natural capital through the sale of federal land so as to establish the structural, technological and bureaucratic configuration for the production of knowledge. "Nowhere was the trend towards occupational utility more apparent or more widely illustrated than in the development of land-grant colleges" (Lucas 1994, 146).

3.1. Industrial Workshops

"[…] the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts… in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life*" (Morrill Act 1862)*.

The history of hacking in the early 1960s involves a few US research universities with MIT at the centre. For this reason, I focus here on institutional changes within MIT. To begin to answer the question, "why MIT? Why 1959?", we unfold an early history of hacking as academic labour that is tightly bound to the institution of the university and the social, political and economic conditions in which higher education developed in the United States during the 20th century.

MIT was one of the first 'land grant' universities – institutions oriented towards science and technology and federally funded to "promote the liberal and practical education of the industrial classes". Land grants were provided under the Morrill Act of 1862, being a response to many years of campaigning by farmers and agriculturalists for research institutions that would contribute to the improvement of US farming. The Act led to States being allocated 30,000 acres of federal land that was to be sold in order to establish endowment funds for such universities. The European Polytechnic movement was also gaining popularity in the US and seen as a model for new applied science universities in contrast to the largely teaching universities that existed at that time. Over 100 'land grant universities' were established across the USA, instituting a system of higher education that served the agricultural and industrial economy and increased access to education for the new class of industrial workers. Land grant universities can be seen as both a way to train labour and in so doing raise the productivity of American industry and agriculture at that time, as well as a response to calls for the democratisation of higher education.

Until the Land Grant universities of the late 19th century, there were no 'research universities' in the US and even academic staff dedicated to research were rare (Atkinson and Blanpied 2007). As a land grant university, MIT has always had close contact with industry; early in its formation MIT employed professional engineers as members of its academic faculty. By the 1920s, these academics were acting as consultants to industry to the extent that there was tension among MIT staff, between those who felt it was their job to focus on teaching and the needs of students, and those who spent a significant portion of their time focusing on the needs of industry. During the Great Depression of the 1930s, MIT was accused by private consultants of subsidising academics to consult, which amounted to unfair competition. As a result of these tensions, a policy was established called the 'one fifth rule', whereby MIT academics could spend a day a week using MIT resources to undertake consulting services. The role of academics acting as consultants is now commonplace in universities but in the US it was at MIT, a land grant university, where the practice was first formalised (Etzkowitz 2002).

In *American Higher Education. A History*, Lucas identifies the "imperatives for change" during the mid-nineteenth century as a "potent combination of social, political, cultural, and economic factors". He points to demand for new technical knowledge, urbanisation, an increasingly secular society and "most important of all perhaps was the growth in surplus capi-

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tal potentially available for institution-building from the accumulated fortunes of industrial entrepreneurs, railroad tycoons and business magnates" (1994, 142). The Morrill Act was a response to this demand, which transformed US higher education. It marked a new period in the democratisation of education as well as re-defining the purpose of higher education to include research as well as teaching. It also established a new relationship between the state and academics with the expectation that academic labour would be put to productive use in training (i.e. improving) industrial and agricultural labour. The subsequent Hatch Act (1887) and Smith Lever Act (1914) led to the establishment of agricultural research stations affiliated with land-grant universities and, for the first time, the widespread co-operation between the State, the academy and industry, for the production of knowledge and the reproduction of labour.

In 1890, F. H. Stoddard, a New York University professor, wrote that the university "has ceased to be a cloister and has become a workshop" (quoted in Lucas 1004, 144). At MIT, 70 years later, that "workshop" for the production of knowledge had grown into a complex genealogy of research labs and projects from which hacker culture emerged as a particular, concrete form of academic labour.

3.2. A Laboratory of Patent Economics

The federal government set in motion the valorisation of capital and subsequent labour required to undertake industrial and agricultural research and consultancy. These land grant universities, such as MIT, then looked for ways to sustain and grow their institutions and the formalisation of consultancy to industry was one method. In addition to consultancy, in 1932 MIT created one of the first university patent policies. Faced with financial uncertainty, this represented a desire by the institution to produce further value from scientific research as was already taking place in industry. It also represented a systematic move towards defining the outcomes of university research as a legal form of property – 'intellectual property'.

Patenting has been the subject of much heated debate throughout the history of the modern university (e.g. see Mowery et al. 2004, ch. 3; Johns 2009, ch. 14). Debates often focused around the ethics and benefits of patenting inventions derived from research, with some academics believing that patents were necessary to protect the reputation of the institutions, for fear that the invention might be "wrongfully appropriated" by a "patent pirate" (Mowery 2004, 36). This view saw patents as a way to enhance the public good and advance social welfare by protecting the invention from "pirates" who might otherwise patent the invention themselves and charge extortionate prices. Within the early pre-WWII debates around the use of patents by US universities, it was this moral argument of protecting a public good that led to patents being licensed widely and for low or no royalties. The few universities that began to apply for patents on their inventions at this time did so through the Research Corporation, rather than directly themselves, so as to publicly demonstrate the disinterested, communitarian nature of their research.

The Research Corporation was established in 1912 by Frederick Cottrell, a scientist at the University of California, Berkeley, as "a sort of laboratory of patent economics" (Mowery 2004, 60). Cottrell had received six patents for his work on the electrostatic precipitator and felt strongly that his research would receive more widespread utility if it were patented than if it were provided to the public for free. Cottrell did not wish to involve university administrators in the management of the patents, as he believed this would set a dangerous precedent of too closely involving non-academics in the scientific endeavours of researchers. He also worried that it would place an expectation on academics to continue to produce work of commercial value, increasing the "possibility of growing commercialism and competition between institutions and an accompanying tendency for secrecy in scientific work" (Cottrell quoted in Mowery et al. 2004, 60).

For the first couple of decades of the Corporation, much of the income came from Cottrell's patents. As these revenues decreased, the Research Corporation looked for other sources of income. This coincided with the Great Depression and a time when universities were struggling to remain solvent. As part of a strategy to sustain MIT its President, Karl

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Compton, charged Vannevar Bush, then Dean of MIT's School of Engineering, with developing a patent policy for the university. With this, MIT asserted an institutional claim on any invention resulting from research funded by the university. However, the patent committee recommended that MIT should be relieved "of all responsibility in connection with the exploitation of inventions while providing for a reasonable proportionate return to the Institute in all cases in which profit shall ensue" (quoted in *ibid* 64). To undertake this, MIT drew up an 'Invention Administration Agreement' (IAA) with the Research Corporation, which, significantly, created a precedent for other universities to follow and also marked a clear shift from the individual ownership of research inventions, many of which were donated to the Corporation by philanthropic academics, to institutional ownership, which anticipated an income from that research (a 60/40 split between MIT and the Corporation). As a result, Cottrell's original vision of creating an independent charitable organisation that turned patent income into grants for further scientific work, had to meet the challenges of the Depression and the unpredictable nature of successfully exploiting research.

MIT institutionalised this method of valorisation through their relationship with the Research Corporation, using it to exclusively manage its patents from 1937 to 1946. The Institute eventually cancelled its contract with the Corporation in 1963, by which time concerns about directly managing the commercial exploitation of its research had largely disappeared and the in-house skills to undertake the necessary administration had been developed over the course of their relationship with the Research Corporation. The partnership between MIT and the Research Corporation was never very profitable, with the Corporation making net losses during the decade that it exclusively managed MIT's patents. However, during and following WWII, the scale of research activity in US universities markedly increased. Mowery et al. notes that "the expansion of military and biomedical research conducted in US universities during and after the war had increased the pool of potentially patentable academic inventions, and federal funding agencies compelled universities to develop formal patent policies during the early post-war period. The Research Corporation negotiated IAAs, modelled on the MIT agreement, with several hundred other US universities during the 1940s and 1950s" (*ibid* 66).

The latter years of the Research Corporation were spent trying to build relationships with university staff in an effort to develop the necessary skills to identify potentially commercial inventions across different research disciplines. Ironically, in its attempt to off-load some of the administrative costs to institutions the Corporation effectively trained university administrators to manage without its assistance, eroding the competitive advantage that the Corporation previously held. During the 1970s, universities were also 'cherry picking' inventions to patent themselves, rather than the Research Corporation, in an effort to benefit from all of the potential revenue rather than a cut of it. This can be seen as a clear indication that earlier concerns about universities directly exploiting their research had been largely overcome, and that during the 1960s and 1970s, the institutional structures and skills within the larger research universities like MIT, had been put in place, partly with the assistance of the Research Corporation. MIT was at the avant-garde of valorising academic labour and provided a model for other universities to follow.

An understanding of the role of patents in the valorisation process shows how the academy struggled both ethically and procedurally to fully assimilate a process by which research outcomes are converted into a direct source of value. It took almost 50 years, from the creation of MIT's patent policy to the generalisation of university patenting with the Bayh-Dole Act in 1980, for this conversion to be fully absorbed into the institutional form of the American university.

3.3. The Military-Industrial-Academic Complex

Federal funding to US universities was not a significant source of research income until the Second World War. Scholars such as Lowen (1997) and Etzkowitz (2002) point to the experience of the First World War and then the Great Depression as stimuli for the closer relationship between universities and federal government. During the turbulent first two decades

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of the 20th century, MIT's leaders made a conscious effort to develop relations with industry (Kaiser 2010). In 1919, MIT President Richard Maclaurin implemented a 'Technology Plan' based upon consultancy to industry in an effort to raise the $8m deemed necessary to keep the Institute solvent. Although MIT failed to reach its target, the legacy of the plan was very significant in that the Institute had established its Division of Industrial Cooperation and Research (DICR), an office that negotiated research contracts with industry. Being unique among universities at that time in having an office that could handle a large number of external contracts, MIT was in an advantageous position when the US entered WWII having bureaucratic processes in place to handle the large increase in government research contracts (Canizares 2007). The DICR was subsequently used as a model for how government transferred funds to other universities during World War II (Kaiser 2010; Green 2010; Etzkowitz 2002; Lowen 1997).

By the time World War II began, leading academics such as Vannevar Bush, who was then Head of the Carnegie Institute of Washington, had successfully lobbied government to create a federal agency to co-ordinate military research. In contrast to the relatively low position accorded to academic scientists during the First World War, Bush and others sought to place academics at the heart of government policy-making through the establishment of the National Defense Research Committee (NDRC) (1940-1). In his memoirs, Bush is clear about his motivations for establishing the NDRC: "There were those who protested that the action of setting up NDRC was an end run, a grab by which a small company of scientists and engineers, acting outside established channels, got hold of the authority and money for the program of developing new weapons. That, in fact, is exactly what it was" (Bush 1970, quoted in Pielke 2012).

The composition of this ground-breaking committee is revealing: of the eight original members, four were academics, two were from the military, one from business and another the US Commissioner for Patents, underlining the strategic relationship between government, industry and the academy. The most significant achievement of the NDRC's short history was the formation of the MIT Radiation Lab ('Rad Lab'), which developed radar technology during the war. The Rad Lab (1940-45) was shut down at the end of the war, but became the model for future 'labs' at MIT and elsewhere, such that there is a significant 'genealogy' of labs (e.g. the AI Lab), projects (e.g. 'Project MAC') and people (like Richard Stallman) that can be traced back to the Rad Lab and the NDRC.

In 1941, the NDRC was superseded by the Office of Scientific Research and Development (OSRD) (1941-7), led by Vannevar Bush. The OSRD was a fully-fledged funding agency for distributing public money to support research which it co-ordinated. Five universities became the main beneficiaries of this funding during the War: MIT, John Hopkins, Berkeley, Chicago and Columbia, resulting in a mass migration of scientists from universities across the country to work at one of these select centres of research.

The increase in research funding to US universities during the period of WWII was huge. Mowery et al (2004) show that federal R&D funding increased fifteen-fold. MIT was the largest single recipient, receiving almost seven times more than Western Electric who were the largest commercial recipient. Consequently, the contractual arrangements developed at MIT prior to and during WWII, and the level of funding administered on behalf of the federal government, fundamentally changed the relationship between the State and universities. The Second World War solved MIT's inter-war financial crisis as Forman (1987, 156-157) has noted: "MIT, on the inside track, emerged from the war with a staff twice as large as it had had before the war, a budget (in current dollars) four times as large, and a research budget ten times as large – 85% from the military services and their nuclear weaponeer, the AEC [Atomic Energy Commission]".

An examination of the funding arrangements for academic R&D during the post-WWI period reveals dramatic change, not only in the amount of public money being transferred to universities, but also in the way that academic scientists developed much closer relationships with government and re-conceptualised the idea, practice and purpose of science. A new ideology of science was formed, encapsulated by its chief architect, Vannevar Bush in the pivotal report *Science: The Endless Frontier* (1945). This famous report to President Roose-

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velt redefined the 'social contract' between scientists and government. Crucially, the report argued for the importance of funding "basic research" as the catalysis for economic growth: *"Basic research leads to new knowledge. It provides scientific capital. It creates the fund from which the practical applications of knowledge must be drawn. New products and new processes do not appear full-grown. They are founded on new principles and new conceptions, which in turn are painstakingly developed by research in the purest realms of science"* (Bush 1945).

In the report, Bush argues that "basic scientific research is scientific capital" necessary in order to create "vigorous enterprises" and that Europe can no longer be depended upon "as a major source of this scientific capital". He then asks the rhetorical question: "How do we increase this scientific capital?" The answer being through academic research: *"we must strengthen the centers of basic research which are principally the colleges, universities, and research institutes. These institutions provide the environment which is most conducive to the creation of new scientific knowledge and least under pressure for immediate, tangible results. With some notable exceptions, most research in industry and Government involves application of existing scientific knowledge to practical problems. It is only the colleges, universities, and a few research institutes that devote most of their research efforts to expanding the frontiers of knowledge" (Bush 1945).*

Bush's success in redefining the role of universities in the valorisation of capital led to dramatic changes in their institutional forms and the movement of academic labour from institution to institution and from research project to research project. So-called 'labs', like MIT's Lincoln Lab were in fact large semi-autonomous organisations employing thousands of researchers and assistants. They became the model for later 'science parks' and spawned projects and research groups which then became independent 'labs' with staff of their own, such as the AI Lab. The University of Stanford learned from this model and it arguably led to the creation of Silicone Valley (Etzkowitz 2002; Gillmor 2004).

The AI Lab where Richard Stallman worked from 1971-1984, is legendary in the history of hacking (Levy 1984). Like many MIT labs, its origins can be traced back to the Rad Lab through the Lincoln Lab and Research Laboratory of Electronics (RLE), where some of its personnel formerly worked and developed their thinking around Artificial Intelligence. The AI Lab began as a research group within Project MAC (Multiple Access Computer and Machine-Aided Cognition). Project MAC was set up in 1963 and originally led by Robert Fano, who had worked in the Rad Lab. J.C.R. Licklider, who helped establish the Lincoln Lab and worked at RLE, succeeded Fano as Director of Project MAC in 1968, having worked for DARPA, an agency of the Dept. of Defence, since 1962 and was responsible for the original Project MAC grant. Licklider remained Director of Project MAC until 1971, a year after Marvin Minsky, who worked in Project MAC's AI research group, led the split to form the AI Lab in 1970, shortly before Stallman arrived as a research assistant. Little more needs to be said here about the AI Lab as it is well documented by Levy (1984) and Williams and Stallman (2010) but what should be underlined is the extent to which the AI Lab, referred to by Stallman as the "Garden of Eden", was the strategic outcome of institutional, government and commercial relationships stretching back to the NDRC, the Rad Lab and that "grab" for the development of weapons by "a small company of scientists and engineers".

As post-war economic conditions and government funding priorities shifted, institutions responded by re-aligning their focus all the while lobbying government and coaxing industry. Etzkowitz refers to this as the 'triple helix' of university-industry-government relations and evidence of a "second academic revolution". Others have been more critical, referring to the "military-industrial-academic complex" (Giroux 2007), and "the "iron triangle" of "self-perpetuating academic, industrial and military collaboration" (Edwards 1996, 47). A further way to conceive what was happening during this period is a strengthening of the social relationship between capital and academic labour. As Marx showed, capital is a determinate logic of "self-valorising value"; it is the "automatic subject" in this case personified by strategic groups such as the NDRC and OSRD, composed of industry, government and university leaders, who sought ways to valorise academic labour by concentrating it in a handful of ma-

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jor research universities which mobilised the means of production for the production of scientific knowledge.

Although the accounts of Etzkowitz and Mowery et al are compelling, they only provide cursory mention of the struggle that has taken place over the years as the university has increased its ties with the military and industry. In particular, these accounts rarely dwell on the *concern* within academia and *opposition* to the receipt of large sums of defence funding and the ways in which academics circumvented and subverted their complicit role in this culture. A number of books have been written which do critically examine this 'second revolution' or the "iron triangle" (e.g. Edwards 1996; Leslie 1993; Heims 1993; Chomsky et al. 1997; Giroux 2007; Simpson et al. 1998; Turner 2006; Mindell 2002). As these critics have shown, there has always been a great deal of unease and at times dissent among students and staff at MIT and other universities which were recipients of large amounts of military funding. This opposition was most clearly made at MIT in the formation of the Union of Concerned Scientists (UCS 1968).

We should not generalise the MIT hackers of the 1960s and 70s as overtly political, yet their playful disregard for conventional computing at that time can be understood as acting against the constraints of an intensifying managerialism within institutions across the US and in particular the rationalisation of institutional life pioneered by the Engineering profession and its ties with corporate America (Noble 1977). Hackers' attraction to time-sharing systems, the ability to personalise computing, programmatic access to the underlying components of computers and the use of computers for leisure activities is characteristic of an emerging sub-culture within the university and to some extent the developing counter-culture of that period (Turner 2006; Wisnioski 2012). Such accounts are vitally important to understanding the dialectical emergence of hacker culture, as are the more apolitical accounts of federal funding and the development of the entrepreneurial university.

3.4. Venture Capital in the Garden of Eden

Levy points to the arrival in 1959 of the TX-0 computer as a seminal moment in the history of hacking. The computer had been donated by the Lincoln Laboratory to MIT's Research Laboratory of Electronics (RLE), the original successor of the Rad Lab and today, "MIT's leading entrepreneurial interdisciplinary research organisation" (RLE 2013). Similarly, Eric Raymond (1999) points to the arrival at the RLE of the PDP-1 computer in 1961 as the moment that defined the beginning of 'hackerdom'. Notably, at that time the RLE shared the same 'Building 20' as the Tech Model Railroad Club (TMRC), the legendary home of the first hackers. The history of hacking is understandably tied to the introduction of machines like the TX-0 and PDP-1 just as Richard Stallman refers to the demise of the PDP-10 as "the last nail in the coffin" for 15 years of work at MIT (Stallman 2002, 18). Given the crucial significance of these machines, a history of hacking should include a history of key technologies that excited and enabled those students and researchers to hack at MIT in the early 1960s. To some extent, Levy's book achieves this although more recent research has helped situate those technologies within the institutional, social and economic context within which Levy's biographical account implicitly resides (Ensmenger 2010; Ceruzzi 2003; Green 2010; Abbate 1999).

In 1947, the US Navy funded MIT's Servomechanisms Lab to run Project Whirlwind to develop a computer that tracked live radar data (Green 2010). The Whirlwind project was led by Jay Forrester, leading systems theorist and principle inventor of magnetic core memory, the patenting of which was marked by a dispute between MIT and the Research Corporation resulting in the cancellation of MIT's contract with the Corporation. MIT's Lincoln Lab was set up in 1951 to develop the SAGE air defence system for the US Air Force, which expanded on the earlier research of Project Whirlwind. The TMRC hackers' first computer was a TX-0 from the Lincoln Lab with its use of a cathode-ray display borrowed from the SAGE project's research into radar. Though large by today's standards, the TX-0 was smaller than Whirlwind and was one of the first transistor-run computers, designed and built at MIT's Lincoln Lab between 1956-7 (Ceruzzi 2003, 127). Much of the innovation found in the TX-0 was soon

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copied in the design of the PDP-1, developed in 1959 by the Digital Equipment Corporation (DEC).

The Digital Equipment Corporation was founded by Ken Olson and Harlan Anderson, two engineers from Lincoln Lab who had also worked on the earlier Whirlwind computer. Watching students at MIT, Olsen had noticed the appeal of the interactive, real time nature of the TX-0 compared to the more powerful but batch operated computers available and saw a commercial opportunity for the TX-0. Soon after they established their firm, they employed Ben Gurley, who had worked with them at the Lincoln Lab and designed the interactive display of the TX-0. It was Gurley who was largely responsible for the design of the PDP-1. DEC is notable for many technical and organisational innovations, not least that it permitted and encouraged its clients to modify their computers, unlike its competitor, IBM, which still operated on a locked-down leasing model. DEC's approach was to encourage the use of its machines for innovation, providing "tutorial information on how to hook them up to each other and to external industrial or laboratory equipment" (*ibid*, 129). This not only appealed to the original TMRC hackers but appealed to many of DEC's customers too, and led to DEC becoming one of the most successful companies funded by the venture capital company, American Research and Development Corporation (ARD).

The American Research and Development Corporation, established in 1947, is regarded as the first venture capital firm and was "formed out of a coalition between two academic institutions" (Etzkowitz 2002, 90). It was founded by the 'father of venture capital', Georges Doriot, then Dean of Harvard Business School, Ralph Flanders, an Engineer and head of the Federal Reserve Bank in Boston, and Karl Compton, President of MIT. ARD employed administrators, teachers and graduate students from both MIT and Harvard. The motivation for setting up this new type of company was a belief by its founders that America's future economic growth rested on the country's ability to generate new ideas which could be developed into manufactured goods and therefore generate employment and prosperity. This built on the argument put forward by Vannevar Bush that 'basic research' should be the basis for the country's economic growth and both views were later constructed into a 'linear model' of innovation by "industrialists, consultants and business schools, seconded by economists" (Godin 2006, 640). This so-called linear process starting with basic research, which is then applied, developed and later taken into production remains a popular ideology today. However, in the late 1940s, although government was funding large amounts of R&D in universities, the founders of ARD complained of a lack of capital, or rather a model of issuing capital, that could assist this conceived linear process of commodifying the outputs of science and so they began to incorporate one.

ARD funded DEC after Olsen and Anderson were recommended to him by Jay Forrester. This led to an investment of $100,000 in equity and $200,000 available in loans and within just a few years DEC was worth $400m allowing ARD to take greater risks with its investments: "The huge value of the Digital Equipment stock in ARD's portfolio meant that the relatively modest profits and losses on most new ventures would have virtually no effect on the venture capital firm's worth" (Etzkowitz 2002, 98). ARD's success marked the beginning of a venture capital industry that has its origins in the post-war university and a mission to see federally funded research exploited in the 'endless frontier' of scientific progress. It led to the development of a model that many other universities copied by providing "seed" capital investment to technology firms and the establishing of 'startup' funds within universities.

One of the catalysts for Stallman leaving MIT was that many of the hackers working with him left to join two companies spun off from the AI Lab to meet a growing demand for Lisp Machines from the AI research community. Four colleagues left to join Lisp Machines, Inc. (LMI), led by Stallman's mentor, the 'hacker's hacker', Richard Greenblatt, while fourteen hackers left to join Symbolics, Inc. a company led by Russell Noftsker, who was Head of the AI Lab for eight years and had hired Stallman. For a while in 1979, Noftsker and Greenblatt discussed setting up a company together that sold Lisp Machines, but they disagreed on how to initially fund the business. Greenblatt wanted to rely on reinvesting early customer orders and retain full control over the company while Noftsker was keen to use a larger amount of venture capital, accepting that some control of the company would be given up to the inves-

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tors, one of which was ARD.[1] Greenblatt and Noftsker couldn't agree and so set up companies independent of each other, attracting most of Stallman's colleagues.

Within a year of the two AI Lab spin-offs doing business, Stallman and Symbolics clashed over the sharing of code (he refers to this as the "software wars"). Having been deserted by his fellow hackers, Stallman had made efforts to ensure that everyone continued to benefit from Symbolics enhancements to the Lisp Machine code, regularly merging Symbolics code with MIT's version which Greenblatt's company used. Like other MIT customers, Symbolics licensed the Lisp Machine code from MIT and began to insist that their changes to the source code could not be redistributed beyond MIT, thereby cutting off Greenblatt's Lisp Machines, Inc. and other MIT customers. Stallman's efforts to keep the old AI Lab hacker community together through the sharing of distributed code came to an end. Lisp Machines went bankrupt in 1985 while Symbolics remained active until the end of the Cold War. With the military's appetite for AI technologies on the decline and venture-funded commodity computing on the rise, Symbolics represented an earlier period of computer science as it attempted to escape the academy.

4. The Systematic Conversion of Intellectual Activity into Intellectual Capital

The institutionalised commercialisation of research at MIT began in the 1930s, when MIT had developed a consultancy policy and one of the first university patent policies, clearly indicating that the Institute had a claim to the profits deriving from its research activity. By 1963, MIT had cancelled its Agreement with the Research Corporation and fully internalised the process of identifying and managing patents. In this respect, MIT was at the forefront of a movement among US universities to undertake "the systematic conversion of intellectual activity into intellectual capital and, hence, intellectual property" (Noble 1998) – to engage in 'entrepreneurial science' where research groups are run as *de facto* firms (Etzkowitz 2003). The military-funded work in Artificial Intelligence during the 1970s, which early hackers contributed to, should be understood within the context of the academy's role in the Cold War (Leslie 1994; Chomsky et al. 1997; Simpson 1998, Lowen 1997). This systematic programme of funded research across a number of disciplines consequently increased the number of commercial opportunities ('technology transfers' in the jargon of linear model innovation), not least in the fields of electronics, engineering and the emerging discipline of computer science.

The development of land grant universities and the practice of applied science, patronised by large sums of government funding, provided the conditions for a hacker culture to emerge in the early 1960s, which remained tied to structural changes taking place within US higher education and its shift towards entrepreneurialism in the 1970s. Stallman has said that he and his colleagues did not object to the commercialisation of their work, but the instruments of this advancing entrepreneurialism (patents, copyright, licenses) were at odds with at least one of the long held "institutional imperatives" of scientific practice: "Communism" (Merton 1973).

In a sincere but retrospectively naive way, Frederick Cottrell recognised this in 1912, when he established the Research Corporation as a charity and donated his patents so as to benefit public social welfare and provide philanthropic grants for further scientific work. However, twenty years later, in the midst of the Depression, MIT asserted institutional interest in the 'intellectual property' of its researchers and sought a majority cut of the income deriving from its patents. It took a further three decades or so for MIT to relinquish the use of the Research Corporation altogether and fully internalise the commercial exploitation of scientific research. Writing in 1973, Merton's "communism" as a foundation of the scientific ethos seems both an ironic use of the term given that most scientific research in the US was being funded through the Cold War agencies, and removed from the reality of what was happening within institutions as they advanced 'entrepreneurial science'. Merton understood this, and

[1] See Noftsker's autobiographical account on Wikipedia http://en.wikipedia.org/wiki/User:Russell_Noftsker Retrieved 2nd April 2013. This account is especially useful in understanding the formation of the AI Lab, the funding arrangements at the time, and the fluid movement of Engineers between the academy and industry.

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his description of the "communal character of science" (Merton 1973, 274) surely refers more to an ideal of a pure, vocational science than actual professional practice (Pielke 2012; Shapin 2008).

The 'MIT model' was later universalised within the US as the Bayh-Dole Act (1980) and provided universities with the legal means and obligation to exploit federally funded research. In doing so, the Act formalised not just a mechanism for patenting but an academic environment that was overall more entrepreneurial. As Etzkowitz states: "In addition to rationalising and legitimising university patenting and licensing, the law induced a psychological change in attitudes towards technology transfer as well as an organisational change in encouraging the creation of offices for this purpose" (2002 114).

5. Conclusion

I have argued that the material conditions for the emergence of hacking are to be found in a series of historical attempts to valorise academic labour (i.e. 'research') that were both extrinsic and intrinsic to the academy.

The provision of land grants at the appeal of agriculturalists marked an early stage in the process of valorisation in higher education, when the creative power of academic labour was subsumed by the treadmill logic of capital. It marked a process by which the unproductive labour of an emerging profession of academic scientists was co-ordinated by the State, industry and leading academics, for productive use.

This formal process of subordination to capital went through further stages over subsequent decades as the valorisation process moved from being extrinsic to the academic labour process to being institutionally internalised during the 1970s at MIT and a few other research intensive universities and then generalised by the Bayh-Dole Act in 1980. This was not simply a 'capture' or 'enclosure' of academic work but through the development of a new discourse of post-war science by leading academics bolstered by the awesome power of the atomic bomb, a reconceptualization took place of the production, distribution and consumption processes of scientific research, its justification and its objectives, its means and its ends. Through the joint efforts of academics and politicians, the purpose and practice of scientific research was positioned as a 'basic' vehicle for the accumulation of capital left to the 'invisible hand' of the market, with the use and subsequent growth of computing at its core (Pielke 2012; Godin 2009, 2006; Polanyi 1967; Shapin 2008).

What this history reveals is that the subordination of hackers' labour to the imperative of valorisation involved a number of actors inside and outside the university, in the public sector and private industry. Taking this view, both the 'triple helix' and the 'iron triangle' of academic, industrial and State relations, are merely ways of articulating the 'capital relation' (i.e. the relationship between capital and labour), which works against our conceptions of public and private. Therefore the resistance and overcoming of this imperative cannot be measured by the extent that the production of science and technology is conducted openly or held in public through legalistic means. This critique of hacking points to the urgent need for science and therefore the university itself to be re-produced apart from the imperatives of the reproduction of capital and its source of value, labour. It suggests that the production of scientific knowledge should be mediated less by the current dialectic of open vs. closed in higher education and elsewhere ('open science', 'open data', 'open source', etc.), but by its effective contribution to a post-capitalist transformation in what constitutes labour and our capacity to reproduce ourselves.

This preliminary analysis also suggests that even if characterised by more open access to the distribution of scientific knowledge, the trajectory of 'progress' in society will remain mediated by the requirements of capital i.e. the concurrent necessity and discarding of human labour as the source of value. Hacking as a form of labour no doubt contributes to capital's measure of what currently constitutes 'progress' but through the legal mechanism of copyleft, free software hackers insist upon "reciprocity in perpetuity" the perpetuation and socialisation of access to software code and other means of production (e.g. 'open hardware') (Pederson 2010, 265). However, a critique of hacking which aims to reveal the contradiction between

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the hack as object and hacker as subject runs the risk of fetishising hacker culture and positing them as a 'sub' or 'counter' culture, somehow set apart from the totality of the social relations of capital and other forms of working class struggle.

The critique proposed here seeks to position hackers not simply as the *subjects* of history but as an *objectification* of the social relations constituted by capital in the university as a historically specific form of labour. As *both* the dialectical subject and object of critique, hacking is then neither explained away as a functional outcome of 'academic capitalism' nor fetishized as a revolutionary subject whose novelty will liberate the means of production. Instead, hacking conceived as a form of labour produced by a series of historical moments in the valorisation of US higher education institutions and a concurrent re-conception of the idea, purpose and method of science, is regarded as a transitional constitution of the social relations of capital to be abolished through the socialisation of its critical achievements. Such achievements are by no means guaranteed and until such time, the "commons-based", "peer-to-peer", "open" techniques of production and distribution, including the legal means of protecting those techniques, can be understood as contemporary forms of struggle by labour that acts in, against and beyond the university and other institutionalised expressions of the social relations of capital.

By focusing on hacking as a historically constituted form of labour, we shift the focus of its critique, and therefore our critique of hacker culture, away from matters of exchange and the market such as the free circulation of software and the ethics of private property for reproducible goods, towards the peculiar and novel characteristics of hacking as labour, struggling to overcome the necessity of itself as a form of self-reproduction.

References

Abbate, Janet. 1999. *Inventing the Internet*. MIT Press.

Adams, Gordon and Nancy Sokoloff. 1982. *The Politics of Defense Funding: The Iron Triangle*. Transaction Publishers.

Atkinson, Richard C. and William A. Blanpied. 2007. Research Universities: Core of the U.S. Science and Technology System. Accessed July 31, 2013. http://cshe.berkeley.edu/publications/publications.php?id=256

Bayh-Dole Act. 1980. Accessed July 31, 2013. http://www.law.cornell.edu/uscode/text/35/part-II/chapter-18

Bush, Vannevar. 1945. Science The Endless Frontier. Accessed July 31, 2013. https://www.nsf.gov/od/lpa/nsf50/vbush1945.htm

Cabinet Office. 2013. Open Data Charter. Accessed July 31, 2013. https://www.gov.uk/government/publications/open-data-charter

Canizares, Claude R. 2007. Sixty-Six Years of Sponsored Research. *MIT Faculty Newsletter* 19 (3). Accessed July 31, 2013. http://web.mit.edu/fnl/volume/193/canizares.html

Ceruzzi, Paul E. 2003. *A History of Modern Computing.* MIT Press.

Chomsky, Noam, Howard Zinn and Immanuel M. Wallerstein. 1998. *The Cold War & the University: Toward an Intellectual History of the Postwar Years.* New Press.

Clarke, Simon. 1980. The Value of Value. *Capital and Class* 4 (1): 1-17.

Coleman, E. Gabriella. 2012. *Coding Freedom. The Ethics and Aesthetics of Hacking.* Princeton University Press.

DiBona, Chris, Sam Ockman and Mark Stone. 1999. *Open Sources: Voices of the Open Source Revolution.* O'Reilly Media, Inc.

Edwards, Paul. 1996. *The Closed World: Computers and the Politics of Discourse in Cold War America.* MIT Press.

Ensmenger, Nathan. 2010. *The Computer Boys Take Over. Computers, Programmers and the Politics of Technical Expertise.* MIT Press.

Etzkowitz, Henry. 1997. *Universities and the Global Knowledge Economy: A Triple Helix of University-Industry-Government Relations*. Continuum.

Etzkowitz, Henry. 2001. The Second Academic Revolution and the Rise of Entrepreneurial Science. *Technology and Society Magazine,* IEEE, 20 (2): 18-20.

Etzkowitz, Henry. 2002. *MIT and the Rise of Entrepreneurial Science*. Routledge.

CC: Creative Commons License, 2013.

Foreign and Commonwealth Office. 2013. G8 Science Ministers Statement. Accessed July 31, 2013. https://www.gov.uk/government/news/g8-science-ministers-statement

Forman. 1987. Behind Quantum Electronics: National Security as Basis for Physical Research in the United States, 1940-1960, *Historical Studies in the Physical and Biological Sciences* 18 (1): 149-229.

Gillmore, C. Stewart .2004. *Fred Terman at Stanford.* University of Stanford Press.

Giroux, Henry A. 2007. *The University in Chains: Confronting the Military- ndustrial-Academic Complex.* Paradigm Pub.

Godin, Benoit. 2006. The Linear Model of Innovation: The Historical Construction of an Analytical Framework. *Science, Technology and Human Values* 31 (6): 639-667.

Godin, Benoit. 2009. The Making of Science, Technology and Innovation Policy: Conceptual Frameworks as Narratives, 1945-2005. Centre Urbanisation Culture Societe, Montreal. Accessed July 31, 2013. http://www.csiic.ca

Green, Tom. 2010. *Bright Boys.* A K Peters Ltd.

Hafner, Katie and Matthew Lyon. 2003. *Where Wizards Stay Up Late: The Origins of the Internet*. Pocket Books.

Himanen, Pekka. 2001. *The Hacker Ethic and the Spirit of the Information Age*. Vintage.

Holloway, John, Fernando Matamoros and Sergio Tischler ,eds. 2009*. Negativity and Revolution. Adorno and Political Activism.* Pluto Press.

Heims, Steve Joshua. 1993. *Constructing a Social Science for Postwar America: The Cybernetics Group, 1946-1953.* MIT Press.

Heinrich, Michael. 2012. *An Introduction to the Three Volumes of Karl Marx's Capital.* Monthly Review Press.

Johns, Adrian. 2009. *Piracy. The Intellectual Property Wards from Gutenberg to Gates.* The University of Chicago Press.

Jordan, Tim. 2008. *Hacking: Digital Media and Technological Determinism.* Polity Press.

Kaiser, David, ed. 2010. *Becoming MIT: Moments of Decision*. MIT Press.

Kelty, Christopher M. 2008. *Two Bits. The Cultural Significance of Free Software*. Duke University Press.

Leslie, Stuart W. 1993. *The Cold War and American Science: The Military-Industrial-Academic Complex at MIT and Stanford.* Columbia University Press.

Lessig, Lawrence. 2004. *Free Culture. How Big Media Uses Technology and the Law to Lock Down Culture and Control Creativity*. The Penguin Press.

Levy, Steven.1984. *Hackers: Heroes of the Computer Revolution.* Penguin Books.

Lowen, Rebecca S. 1997. *Creating the Cold War University. The Transformation of Stanford*. University of California Press.

Lucas, Christopher J. 1994. *American Higher Education. A History*. St. Martin's Griffin.

Markoff, John. 2005. *What the Dormouse Said: How the Sixties Counterculture Shaped the Personal Computer Industry.* Penguin Books.

Marx. 1976. *Capital Volume I.* Penguin Classics.

Marx. 1978. The Value Form. Accessed October 18, 2013. http://www.marxists.org/archive/marx/works/1867-c1/appendix.htm

Marx. 1874. Conspectus of Bakunin's Statism and Anarchy. Accessed July 31, 2013. http://www.marxists.org/archive/marx/works/1874/04/bakunin-notes.htm

Merton, Robert K. 1973. *The Sociology of Science.* The University of Chicago Press.

Mindell, David A. 2002. *Between Human and Machine: Feedback, Control, and Computing Before Cybernetics.* JHU Press.

Morrill Act. 1862. Accessed July 31, 2013. http://www.law.cornell.edu/uscode/text/7/304

Mowery et al. 2004. *Ivory Tower and Industrial Innovation. University-Industry Technology Transfer Before and After the Bayh-Dole Act.* Stanford University Press.

Neary, Mike. 1999. Labour: The Poetry of the Future. In *Global Humanisation: Studies in the Manufacture of Labour*, edited by M. Neary, 164–193. Mansell.

Noble, David F. 1977. *America by Design: Science, Technology, and the Rise of Corporate Capitalism.* Oxford University Press.

Noble, David F. 1998. Digital Diploma Mills: The Automation of Higher Education. First Monday (3) 1-5 January 1998. Accessed July 31, 2013. http://firstmonday.org/ojs/index.php/fm/article/view/569/490

Pederson, J. Martin. 2010. Property, Commoning and the Politics of Free Software. The Commoner 14, Winter 2010. Accessed July 31, 2013. http://www.commoner.org.uk/index.php?p=107

CC: Creative Commons License, 2013.

Pielke Jnr., Roger. 2012. Basic Research as a Political Symbol, *Minerva* 50 (3): 339-361.
Polanyi, Michael. 1962. The Republic of Science: Its Political and Economic Theory. *Minerva* 1: 54-74.
Postone, Moishe. 1993. *Time, Labour and Social Domination.* Cambridge University Press.
Postone, Moishe. 2004. Critique and Historical Transformation. *Historical Materialism* 12 (3): 53-72.
Raymond, Eric S. 1999. A Brief History of Hackerdom. In *Open Sources: Voices of the Open Source Revolution,* edited by DiBona et al., 19-29. O'Reilly Media, Inc.
Research Laboratory of Electronics (RLE). 2013. Accessed July 31, 2013. http://www.rle.mit.edu/about/
The Royal Society. 2012. Science as an Open Enterprise. Accessed July 31, 2013. http://royalsociety.org/policy/projects/science-public-enterprise/report/
Shapin, Steven. 2008. *The Scientific Life. A Moral History of a Late Modern Vocation*. The University of Chicago Press.
Simpson, Christopher. 1998. *Universities and Empire: Money and Politics in the Social Sciences During the Cold War.* The New Press.
Slaughter, Sheila and Larry Leslie. 1997. *Academic Capitalism: Politics, Policies, and the Entrepreneurial University.* John Hopkins University Press.
Soderberg, Johan. 2008. *Hacking Capitalism*. Routledge.
Sohn-Rethel, Alfred. 1978. *Intellectual and Manual Labour. A Critique of Epistemology*. Humanities Press.
Stallman, Richard. 1981. EMACS Manual for ITS Users. AI Memo 554. MIT AI Lab. 22nd October 1981. Accessed July 31, 2013. ftp://publications.ai.mit.edu/ai-publications/pdf/AIM-554.pdf
Stallman, Richard. 1988. What is Copyleft? GNU's Bulleting 1 (5). Accessed July 31, 2013. https://www.gnu.org/bulletins/bull5.html - SEC5
Stallman, Richard. 2002. *Free Software Free Society: Selected Essays of Richard M. Stallman*. GNU Press.
Sterling, Bruce. 1992. *The Hacker Crackdown.* Bantam Books.
Stratton, Julius Adams and Loretta H. Mannix. 2005. *Mind And Hand: The Birth Of MIT.* MIT Press.
Tai, Andy. 2001. The History of the GNU General Public License. Accessed July 31, 2013. http://www.free-soft.org/gpl_history/
Turner, Fred. 2006. *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism.* University of Chicago Press.
Union of Concerned Scientists. 1968. Founding Document: 1968 MIT Faculty Statement. Accessed July 31, 2013. http://www.ucsusa.org/about/founding-document-1968.html
Williams, Sam and Richard Stallman. 2010. *Free as in Freedom. Richard Stallman's Crusade for Free Software.* SoHo Books.
Wisnioski, Matthew. 2012. *Engineers for Change: Competing Visions of Technology in 1960s America.* MIT Press.

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WRITING ABOUT ACADEMIC LABOR

In a letter from Marx to Engels on the 24th August 1867, the year that the first volume of *Capital* was published, he wrote:

> The best points in my book are: 1. (this is fundamental to all understanding of the FACTS) the two-fold character of labour according to whether it is expressed in use-value or exchange-value, which is brought out in the very First Chapter; 2. the treatment of surplus-value regardless of its particular forms as profit, interest, ground rent, etc. This will be made clear in the second volume especially. (Marx 1987, 402)

Marx first elucidated the 'two-fold character of labour' in *A Contribution to the Critique of Political Economy* (1859) and then seven years later reworked it into the first chapter of *Capital Vol.1*. There, Marx unfolds his new scientific discovery, one that he regarded as "the pivot on which a clear comprehension of political economy turns" (Marx 1996, 51).

Marx's discovery shows how the role, character and measure of labour is central to political economy and therefore to the total 'logic' of capitalism's social world. Marx's discovery was not simply that labour is useful and can be exchanged like any other commodity, but that its character is "expressed" or "contained" in the form of other commodities. What is expressed is that labour in capitalism takes on the form of being *both* concrete, physiological labour and at the same time abstract, social, homogenous labour. It is the abstract character of labour that is the source of social wealth (i.e. value) and points to a commensurable way of measuring the value of commodities and therefore the wealth of capitalist societies. Marx called this measure 'socially necessary labour time':

> the labour time required to produce any use-value under the conditions of production normal for a given society and with the average degree of skill and intensity of labour prevalent in that society (Marx, 1976, 129)

Arguably, there have been no further scientific discoveries regarding the fundamental character of labour since this "important point" upon which "a clear comprehension of political economy turns" was elucidated by Marx over 150 years ago. Harry Braverman recognised this in the 1970s, when he stated that, "there simply is no continuing body of work in the Marxist tradition dealing with the capitalist mode of production in the manner in which Marx treated it in the first volume of *Capital*." (Braverman 1998, 7) Indeed, when I read articles and books concerning my own labour: 'academic labour', Marx's foundational discovery appears to be largely unknown or neglected among the very profession where I would expect to find it well understood. More often, the study of academic labour is the study of 'academic work' i.e. the changing nature of our profession (Smyth 1995; Tight 2000; Fitzgerald *et al* 2012), the impact of policy and bureaucracy on our work (Slaughter and Leslie 1999), the politics of the workplace (Martin 1998), and, increasingly, a concern with our identity and what it subjectively means to be an academic (Herman and Schmid 2003; Barcan 2013; Whitchurch and Gordon 2010). Such accounts generally respond to an acknowledged decline in the conditions of academic labour across the world and

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the increasingly instrumentalised role of higher education in national economies (Molesworth *et al* 2010; Shattock 2012; Brown and Carasso 2013). Yet, despite repeated calls for increased unionisation (Johnson *et al* 2003; Krause *et al* 2008; Mattson 2000; Nelson 1997), the trajectory remains the same: individual autonomy is decreasing (Wilson 1991; Willmott 1995; Hall 2013), contractual conditions are worsening (Cross and Goldenberg 2009; Bérubé 2013; UCU 2013;), individual mental health issues are rising (Kinman and Wray 2013), and work is being intensified (Bryson 2004; Gill 2009; Ogbonna and Harris 2004). In retrospect, the gains of the 20th century labour movement are diminishing and one might question whether the critical, intellectual tools developed by academics today are adequate for understanding what is actually happening to us.

So, I recognise that for several decades, academics have written critically about our profession producing a variety of individual monographs, edited collections and journals (notably, *Workplace: A journal for academic labour*) dedicated to analysing the process and conditions of labour inside the academy. Yet, despite much having been written about academic *work*, there is relatively little critical engagement with *labour* itself as the object of critique. It would seem this "avoidance of labour" (Neary & Dinerstein, 2002, 25) as the object of critical enquiry is widespread in the social sciences and not just in the study of academic labour. Instead of a critical theoretical engagement with the *category* of labour, greater attention has been given to the *conditions* of labour and the subsequent "corrosion of character." (Sennett, 1998) As the Historian, Moishe Postone has argued, the outcomes of such approaches tend towards an undialectical resistance to our own material conditions and an overwhelming sense of helplessness (Postone 2006).

In response, this essay calls for a return to the labour theory of Marx, or rather to Marx's *negative critique* of labour and its role in the political economy of capitalism. In what follows, I draw not only on Marx, but am influenced by Postone's reading of Marx, whose seminal book, *Time, Labour and Social Domination*, and subsequent work, has revitalised our understanding of the role and character of labour in capitalism and points to a fundamental error in the position taken by labour activists and 'labour studies' in general. That is, a critique of capitalism and its apparent complexity must be undertaken through an immanent critique *of* labour, rather than from the *standpoint* of labour as has been the case with the tradition of labour studies, whether Marxist or not. As Postone has concluded, "both the concrete and abstract social dimensions of labor in capitalist society are dimensions of capital, according to Marx; neither of them, in their existent form, represents the future." (Postone 1993, 358) In essence, the two-fold character of labour must be abolished, transcended and overcome rather than dignified and sustained.

To ground this approach, I want to outline a different method of writing and therefore thinking about academic labour. One that starts from a rigorous engagement with the fundamental categories of Marx's theory and a better appreciation of the method he employed in the development of those categories. By doing so, I want to be clear about the utility of Marx's insights when studying the work of research, teaching and learning and the political economy of higher education in general. In understanding the university as a capitalist institution, I want to steer other academics towards Marx's "total critique", an approach that is "at one and the same time methodological, theoretical and political" (Clarke, 1991 51). This is at a time when it seems to me there is increasing confusion and mystification about how and whether 'immaterial labour', 'intellectual labour', 'knowledge work', 'cognitive capitalism' and 'digital labour' are categorically different to labour as conceived by Marx. (Dyer-Witheford 2005; Harvie and De Angelis 2009; Haug 2009; Peters and Bulut 2011; Scholz 2013; Fuchs 2014)

Overwhelmed by the real and complex conditions of our work, one reaction is to reify it further, rather than to analyse it rigorously through more simple abstract categories. The danger of the former approach is that we *further* hypostatise what *already* appears real and concrete and consequently we identify attributes of capitalism, or more often 'neoliberalism', with the way things *appear* to be rather than its more basic social categories. In effect, this is a type of fetishism that attacks the personifications of a given social form, while leaving its more fundamental abstract character to remain in tact. (Postone, 1980, 111) Consequently, we write about the apparent crisis of academic work, its so-called performativity, its

precarity, its Taylorisation, and in general its violation by a variety of neoliberal technologies. Next, I focus on one widely cited example.

Performing academic labour

In *The Teacher's Soul and the Terrors of Performativity*, Stephen Ball (2003) defines 'performativity', as one of three "policy technologies" of education reform, the other two being 'the markets' and 'managerialism'. Performativity is

> a technology, a culture and a mode of regulation that employs judgements, comparisons and displays as means of incentive, control, attrition and change – based on rewards and sanctions (both material and symbolic). The performances (of individual subjects or organisations) serve as measures of productivity or output, or displays of 'quality', or 'moments' of promotion or inspection. As such they stand for, encapsulate or represent the worth, quality or value of an individual or organisation within a field of judgement. The issue of who controls the field of judgement is crucial. (Ball 2003, 216)

According to Ball, these reified technologies of reform are "unstable, uneven but apparently unstoppable". They are becoming "embedded in the 'assumptive worlds' of many academic educators". They change what we do and who we are. This reform has created "institutional schizophrenia", characterised by a "devolved environment", managed through "monitoring systems and the production of information". In this "advanced liberal" environment, de-regulation is a process of re-regulation, de-control is a new form of control, a less visible state regulates through the self-regulation of new subjectivities: "enterprising subjects" who "live an existence of calculation" and undertake "intensive work on the self".

This "form of ventriloquism" is surveilled by "appraisal systems, target-setting, output comparisons", etc. and leads to "security seeking tactics", "existential anxiety and dread". The "neo-liberal professional" performs within and as part of a regulatory environment where "value replaces values." It is an "inauthentic", "contradictory" existence that is "ontologically insecure". The teacher's "purposes are made contradictory, motivations become blurred and self worth is uncertain." The schizophrenia of the institutions leads to "a kind of values schizophrenia" with "a potential 'splitting' between the teacher's own judgements about 'good practice' and student 'needs' and the rigours of performance." It leads to "guilt, uncertainty, instability and the emergence of a new subjectivity". It leads to struggles that "are often internalised and set the care of the self against the duty to others." "Performance has no room for caring… these are things we do to ourselves and to others."

Ball concludes that by being commodified, knowledge is "exteriorised" and consequently "de-socialised". As a result, teachers are struggling with and against the effects of commodification, which "involves a profound shift in the nature of the relationship between workers and their work". It results in a "corrosion of character" and no space of an autonomous or collective ethical self."

In my view, what Ball describes in this rich polemical essay, is capitalist work as "a form of living death". (Dinerstein and Neary, 2002, 11) For me, the value of his article is that it eloquently extends the vocabulary that I have used to describe my own work in conversation with others: "Schizophrenic"; "intensive work on the self"; "de-control as a new form of control"; "an existence of calculation"; "purposes are made contradictory, motivations become blurred and self worth is uncertain."

Ball's article describes, and to some extent, analyses capitalist work as it appears in universities, colleges and schools. What appears is indeed a performance, but this is insufficient as an explanation for what is actually going on backstage and keeps the show running. Ball is right to point to an "epidemic" of reform ideas "'carried' by powerful agents, like the World Bank and the OECD". However, what his article doesn't extend to is a recognition of the performative nature of those agents, too. Who are they agents for? What are they agents of? What is *their* role in the "game"? In fact, what *is* this "improvement game"? The problem with Ball's article, despite all its descriptive and emotive power, is that his analysis in this paper does not extend to a discussion of the economic categories which have set the "unstoppable" technologies

of reform in motion, and the "agents" are reified as the World Bank and OECD, rather than being understood themselves as "personifications of economic categories". (Marx 1996, 10) He does not indicate that the capitalists themselves could be personifications of capital and that the "assumptive world" of "new kinds of teacher subjects" and their subjectivities, is the world and subjectivity of *value*, "an automatic subject" (Marx 1976, 255) and the "self-moving substance" (Marx 1976, 256) of social life. If this movement really is "apparently unstoppable" as Ball states, we have to uncover the "historically determinate logic" (Postone, 1993, 285) behind this "game" or else live with the helplessness instilled by Ball's essay: a form of living death.

Throughout his critique of political economy, Marx makes frequent reference to the language of performance. We learn of "masks", "personifications" and "*dramatis personae*", of which the key characters are the capitalist and the worker, each of whom perform a role in capital's "self-valorisation of value" (Marx 1988, 84). These references to performativity are not simply a matter of literary flourish but relate to Marx's method of critique, which aims to distinguish between the appearance of things in their concrete form and their real nature as abstract social categories that dominate us. As Ball rightly argues, education has become a commodity, but we know from Marx that the commodity form is a fetish; it is a historically specific form of wealth made manifest in the capitalist mode of production and so to understand how academic labour appears as a commodity we must leave the "sphere of circulation or commodity exchange" and analyse the "hidden abode of production". (Marx 1976, 279-80)

The important point here, I think, is that while the commodity is what Marx called, the "economic cell form" of capitalist society from which everything else can and should be analysed (Marx 1976, 90), there is a "special", "peculiar" commodity: that of 'labour power'. It is special because, Marx argues, it is "a source of value" (Marx 1976, 270), the only commodity that can *create new value* for the capitalist either by extending time i.e. lengthening the working day – which has its natural limits or by compressing time i.e. increasing the productivity of labour through various methods of efficiency. It is this, I believe, that is key to understanding what lies behind Ball's observations around the imposed performativity of academic labour. In our performativity, teachers are enacting and gradually embodying what, in the end, amounts to capital's compulsive and relentless drive to increase 'surplus labour time', over and above 'necessary labour time'; that which Marx described technically as 'exploitation'. Capital's imperative to exploit labour, its only dynamic source of surplus value, is at the heart of this performance and the "schizophrenia" of performativity that Ball describes can be understood as an acute manifestation of capital's relentless need to subsume, level, and valorise all aspects of human life. Reflecting on the "terror" of this madness, labour in capitalist society finally recognises itself as what it can only be: "fuel for the living fire." (Rikowski 2002)

Rising from the abstract to the concrete

A search for 'marx*' across all 24 issues (250+ articles, reviews, interviews, etc.) of *Workplace: A journal for academic labour*, discovers 53 items. Of these, only 14 formally cite Marx's work, five directly engage with his work on a theoretical level (Caffenzis 2008; Gulli 2009; Moten and Harney 1999; Pekkola 2013; Wexler 2008), and just two are attentive to his method (Caffenzis 2008; Moten and Harney 1999). For a journal primarily concerned with academic labour, this suggests a forgetting – perhaps even an avoidance – of its critical, theoretical base.

Across 24 issues of the journal, the most sophisticated use of both Marx's social theory and method is an article by Moten and Harney (1999). In *The Academic Speed-Up*, they point to four approaches (pp. 24-5) to the study of capitalist societies:

1. There was the practical knowledge of businessmen about how the market worked, a knowledge that proved true because it made them rich.
2. There was the vulgar propaganda of 19th century economists and politicians, who spun theories out of this practical knowledge to defend it, and whose knowledge was also true to

the extent they were able to dominate this society with their (to Marx) crude schematic of how the market worked.

3. There was theoretical work of classical economists like Smith and Ricardo, whose more sophisticated and in-depth analysis of the human conditions produced by the market Marx admired as a truer picture of the historical moment of capitalism from the market's vantage point.
4. There was Marx's own truth, that human conditions under the sway of this market could only be understood by going beyond the market, historicizing it and completing it with a picture of the production process off-stage that made the market possible.

The point that Moten and Harney make is that most critical analyses of academic labour (and I would include Ball's example above), identify the problem somewhere amidst the first and second levels of analysis; that is, the problem is (1) the conditions of the labour process (e.g. its precarity and expressions of performativity); or (2) the ideologies which support and maintain that labour process, i.e. 'neoliberalism'.

This suggests that any author whose argument rests on a critique of 'neoliberalism' simultaneously reveals the limits of their argument. As Moishe Postone has argued, the existence of different historical configurations of capitalism (e.g. liberal, Fordist, neoliberal) "indicates very strongly that capitalism's most basic features cannot be identified completely with any of its more specific historical configurations." (Postone 2005) The point he makes in much of his work is that our critique must rest on categories that are fully adequate to our historical condition i.e. capitalism. Traditional Marxist influenced critical analysis of the market and the distribution of private property has clearly proved an inadequate foundation on which to base an emancipatory critique. Such critiques were drawn from the *standpoint* of labour and its reification, rather than aimed at its *abolition* or over-coming (the word Marx uses in German is *aufheben*). That is, labour, although recognised as a key category in critical social theory, was never subjected to a rigorous *negative* critique in the same way that other features of capitalist social life have been.

Similarly, Simon Clarke has described 'neoliberalism' as "a reassertion of the fundamental beliefs of the liberal political economy that was the dominant political ideology of the nineteenth century." (Clarke 2004, 57) His point is that despite a variety of periodic expressions, the problem that our critique must always be mindful to address is the problem of 'capital' as a fundamental and historical category. When the problem is deemed to be 'neoliberalism', attempts to critique it are likely to remain as superficial, unscientific and moralistic as neoliberal theology itself. Clarke's short article on neoliberalism can be read as an attempt to shift the critique away from these relatively superficial levels of analysis, to a more foundational understanding of the problem, (which can be aligned with point three of Moten and Harney's argument) and its revolutionary, scientific critique (point four). Likewise, Moten and Harney argue that it "fall[s] to us then first to avoid our talk of a crisis becoming the vulgar knowledge of these conditions. We should avoid taking this practical knowledge and trying to translate it straight into a theory of conditions. Instead we have to take the further step of exploring the theory of conditions already constituted for us." (Moten and Harney 1999, 25)

This section in their article is titled 'Abstracting Academic Labour' and I think it should be read as a reference to the method undertaken by Marx: that of "rising from the abstract to the concrete" (Marx 1973, 101). In my view, it is essential that we try to understand what this entails.

When Marx writes about labour in his work, he is writing about capitalist labour; that is, a conception of labour in the historical context where the capitalist mode of production has been generalized across society. His analysis of labour is intended to scientifically demonstrate how capitalist labour is distinct from labour prior to the emergence of capitalism and in non-capitalist societies. In this way, capitalist labour is both explicitly and implicitly set against a past historical and a future possible form of labour. In his early work such as *The German Ideology* (1845), Marx reflected deeply and extensively on his critical approach as uniquely dialectical, historical and materialist. In practice, what this means is that he seeks to uncover contradictions or antagonisms between things (i.e. ideas, practices, subjectivities, social

structures) that we can determine from recorded history and observations in society. Marx asserts that people and the way we interact with each other are the outcome of real, social, historical forces of production. The way we think is influenced by our actions and the actions of others in the world, through history, in society. Rather than being determined by some kind of external power, such as God, we are of our own making: in the process of creating history we create ourselves. Marx's view of history is that there are tendencies which amount, on the face of it, to laws, but that they are in fact contingent on human action and therefore cannot be used to justify the status quo. Everything is open to critique and is always in motion.

Marx considered his method to be rational and scientific and share similar methodological characteristics to that of the natural sciences. In his research, he employed various techniques such as detailed observation, logic, reference to literature, and the use of documentary evidence (e.g. the English 'Blue Books') to explicate social 'laws' and tendencies. In seeking to explain the concrete features of our lives, he identified a realm of *real abstraction* (Sohn-Rethel 1978; Jappe 2013) that is often contradistinct to what appears to be real and natural. In doing so, his analysis is systematically and simultaneously abstract and concrete; he acknowledged the material reality of our lives and the world we live in but is sceptical of manifest surface appearances and especially commonsensical ideas which we take for granted as trans-historical and natural, such as the idea of 'labour'.

In a preface to *Capital* he compares his task to that of the Physicist, Biologist and Chemist, explaining that for the study of society, "the power of abstraction" must take the place of the microscope and chemical reagents (Marx 1976, 90). Although he discusses capital in detail using the examples of certain types of labour such as that of tailors, weavers, farm and factory workers, in doing so he is also abstracting to an "ideal average" (Marx 1991, 970), so as to offer an "analysis of capital in its basic structure." (Marx 1991, 379) As such, his analysis of labour was intended to be applicable to all forms of labour engaged in the capitalist mode of production, thereby offering a systematic, penetrating and multi-faceted analysis and re-conception of labour in its temporal, historical and de-naturalised forms.

In the *Grundrisse* (1857), Marx described his critical approach as "the method of rising from the abstract to the concrete" (Marx 1973, 101), going to some length to explain what he means by this, using the concept of 'population'.

> It seems to be correct to begin with the real and the concrete, with the real precondition, thus to begin, in economics, with e.g. the population, which is the foundation and the subject of the entire social act of production. However, on closer examination this proves false. The population is an abstraction if I leave out, for example, the classes of which it is composed. These classes in turn are an empty phrase if I am not familiar with the elements on which they rest. E.g. wage labour, capital, etc. These latter in turn presuppose exchange, division of labour, prices, etc. For example, capital is nothing without wage labour, without value, money, price etc. Thus, if I were to begin with the population, this would be a chaotic conception [Vorstellung] of the whole, and I would then, by means of further determination, move analytically towards ever more simple concepts [Begriff], from the imagined concrete towards ever thinner abstractions until I had arrived at the simplest determinations. From there the journey would have to be retraced until I had finally arrived at the population again, but this time not as the chaotic conception of a whole, but as a rich totality of many determinations and relations. (Marx, 1973, 100)

Shortly after this passage, he clarifies the relation between the abstract and the concrete:

> The concrete is concrete because it is the concentration of many determinations, hence unity of the diverse. It appears in the process of thinking, therefore, as a process of concentration, as a result, not as a point of departure, even though it is the point of departure in reality and hence also the point of departure for observation [Anschauung] and conception. … the abstract determinations lead towards a reproduction of the concrete by way of thought. (Marx, 1973, 101*)*

In this text, Marx is keen to distinguish his approach from Hegel's idealism, arguing that his own dialectical use of abstractions are reliant on, and grounded in, the concrete, material, social attributes of

human life. These real abstractions have a determinate force as they reproduce the concrete, which is the concentrated *result* of real abstractions. (Ilyenkov, 1982, 32-34) He gives an example of the abstraction of 'exchange value', which can only exist in a dialectical relationship with the concrete social relations found in society, such as the family, commune or state.

Further on in his notebooks, Marx discusses how an abstraction can change in relation to the concrete world. Simple abstractions might appear to presuppose the more complex reality of the world, but in fact, he argues, they express the historical development of the social conditions and relations at particular times and places. "To that extent", says Marx, "the path of abstract thought, rising from the simple to the combined, would correspond to the real historical process." (Marx 1973, 102) In effect, this is a warning not to methodologically employ concepts such as 'money', 'exchange', or labour', etc. to all people at all times across all places. It is an argument for grasping the contingent basis of theoretical concepts prior to their application in the concrete world. (Marx 1973, 105) It is not simply a *mistake* to apply existing categories to all of history but also a *constraint* because it limits our ability to understand the present as well as the past. Marx argues that categories such as 'money' and 'labour' express both "what is given, in the head as well as in reality", and therefore "the characteristics of existence" but from specific, limited points of view (Marx 1973, 106). Thus, rejecting Positivism, Marx argues that it is a mistake to think that society "begins only at the point where one can speak of it *as such*; this holds *for science as well*." (Marx 1973, 106)

Marx's starting point of analysis is the dominant, ruling, mode of production in contemporary society i.e. 'capital', rather than what he argues are related but secondary categories such as 'population' or 'landed property'. (Marx, 1973, 107) Although there may appear to be a 'logic' to starting with a specific point of interest (e.g. 'population', 'higher education', 'science', 'academic labour', etc.) and then developing one's analysis from there, Marx argues that the mode of production (i.e. capital) dominates – "rules" – the body and mind to such an extent that without starting from an examination of capitalism's fundamental categories (and therefore one's own abstractions) is to approach one's analysis (e.g. of 'academic labour') more-or-less blind. In effect, he is saying that we are born out of capital – we are capital – and must begin our analysis with an adequate understanding of what this means to be human.

In the final passage of this section of his notebooks, he succinctly demonstrates the method of "rising from the abstract to the concrete" using the example of 'national wealth'. (Rosdolsky 1977, 27) Having explained how the term came into use and over time came to uncritically justify the conception of the modern state, he then concludes by outlining this particular methodological approach (Marx 1973, 108). If we apply this same method to an analysis of academic labour, (i) we start with general categories that seemingly apply to all people at all times e.g. 'labour'; (ii) move on to an examination of contemporary forms of those categories e.g. 'capital', 'wage labour'; (iii) next, examine the inter-relation of the categories' abstract character in their concentrated, concrete social forms e.g. the 'workplace', the 'State'; (iv) examine the concrete/abstract dialectic developed so far in the more expansive, global setting e.g. global labour market; (v) and examine the dialectic developed so far at a systemic level e.g. the inter-relation between global production, exchange, unemployment, crises, etc. Thus, we've started from the seemingly simple category of 'labour' and moved dialectically to locate it temporally both in terms of its abstract character and its appearance at a local, social level, and its role in international politics, markets, war, etc. To conceive of 'labour' or any other simple category in any other way is to fall short of understanding it.

As I summarised in the first part of this essay, the dual character of commodities in capitalist societies expresses the dual character of human labour in capitalist societies. The use-value or utility of a commodity expresses the concrete, physiological, useful aspect of labour and the exchange-value or value of a commodity expresses the abstract, social, homogenous aspect of labour. In the first chapter of *Capital*, Marx introduces the key theoretical categories which his scientific critique of political economy has revealed: the commodity-form (use-value and exchange value); the corresponding dual character of labour (concrete and abstract labour); the value-form (relative and equivalent values, resulting in the money-form) and the measure of value (socially necessary labour time). A key, though neglected category

conceived by Marx is 'abstract labour' (Bonefeld, 2010). Abstract labour is the "substance of value"; it is "human labour power expended without regard to the form of its expenditure" (Marx, 1976, 128). It is "congealed", "jelly", a reduction into "a definite quantity of equal, general, undifferentiated, social, abstract labour" (Marx, 1988, 71); or, "labour pure and simple, abstract labour; absolutely indifferent to its particular specificity." (Marx, 1973, 296)

> The coat is value only to the extent that it is the expression, in the form of a thing, of the human labour-power expended in its production and thus insofar as it is a jelly of abstract human labour – abstract labour, because abstraction is made from the definite useful concrete character of the labour contained in it, human labour, because the labour counts here only as expenditure of human labour-power as such. (Marx, 1978, 136)

In just this single analytical sentence, Marx starts with the abstract (value) to arrive at the concrete (labour), but of course in practice it is not a unidirectional process. As relative and equivalent forms of values in the exchange relation, all commodities (i.e. goods and services, including higher education) represent "human labour in the abstract" serving as the equivalent for the abstract labour expressed by another commodity. While at the same time, the commodity is also the product of "specifically useful concrete labour" such that the "concrete labour therefore becomes the expression of abstract human labour." (Marx, 1976, 150)

'Abstract labour' is not a substance in the sense of a kernel or essence of a thing; it is a theoretical category for articulating a real, active social process that normally goes unspoken, so that we understand capital better.

From being to doing

The danger with starting from the concrete conditions of academic labour, as Postone, Clarke, and Moten and Harney point out, is that if we only remain attentive to the conditions of the labour process and their ideological counterpart, then we are likely to build a politics which responds to the "vulgar" propaganda of 'neoliberalism' and its apparatus rather than being grounded in a more fundamental, immanent critique of "the production process off-stage"; what Marx referred to in his chapter on the 'Buying and Selling of Labour Power', as the "hidden abode of production".

> Accompanied by Mr. Moneybags and by the possessor of labour-power, we therefore take leave for a time of this noisy sphere, where everything takes place on the surface and in view of all men, and follow them both into the hidden abode of production, on whose threshold there stares us in the face "No admittance except on business." Here we shall see, not only how capital produces, but how capital is produced. We shall at last force the secret of profit making. (Marx, 1996, 186)

Moten and Harney rearticulate this in the context of higher education:

> Away from the public sphere where ideas of higher education, economic expansion and contraction, and citizenship rule, another way of interpreting conditions becomes possible. Those conditions are darker both because they are hidden from the airy world of the public sphere and because they include violent forces like industrialization, central planning, proletarianization, and struggles against capitalist relations. This is to say that another way of understanding this golden age is not so golden, but it may be a way to build a better theory of these working conditions. (Moten and Harney 1999, 25)

Moten and Harney make much of the distinction between individual and social production in their article. This distinction between individual and social, co-operative labour within the academy is at the heart of the problem of capitalist work in that through the division and socialisation of labour, we become alienated from that which we produce and from each other. Social relations have been turned into the relations of private property. Moten and Harney develop a critique of the "dream" of 'intellectual craftsmanship' and the 'Golden Age' it increasingly represents by discussing craftsmanship as a mode of

production in which the individual brings his wares to the market, "where a student or the public could see directly the value of his work, where the author stood behind his work." In opposition to this view of the academic, Moten and Harney focus on the *actual* practice of academic labour in capitalist society as a "social world of making and sharing knowledge" where both academics and students co-operate in the "production, circulation, and realisation" of the knowledge commodity (Moten and Harney 1999, 26).

Moten and Harney are critical of the "vulgar" theorisation of academic labour which views the university as a market, either a romanticised one in which "a special and limited brotherhood" of individuals offer their wares, or that of a centrally planned factory which produces and circulates knowledge as a commodity so as to realise exchange value (Tancred-Sherrif 1985). Both market-led perspectives, they argue, reveal an internalisation of a production line, "from that golden age when we cared not to see we were part of a centrally planned knowledge factory, to what we might call the internalization of a cybernetics of production." (Moten and Harney 1999, 28)

In their related book chapter, "Doing Academic Work" (1998), Harney and Moten reiterate their argument that academics speak critically about the conditions of their work but also set themselves apart from most other workers in that they disavow both the "mutual interdependence and the sociality of her or his product." Their position is that "most professors in the United States are part of the service sector proletariat in this country." (Harney and Moten 1998, 155) In short, they suggest that the subjectivity of academics is one that tends to view academic work as a *position*, rather than an *activity* and this leads Harney and Moten to focus not on what it means to *be* an academic worker but what it means to *do* academic labour. This focus on the doing or activity of academic labour is the starting point for understanding academic labour as a particular expression of social production that extends both across and outside the academy.

Harney and Moten's argument points to a possible reason why most critiques of academic labour reside at the level of the labour process fetish, within the discourse of vulgar theory, and concerned with the minutiae of our conditions rather than abstract determinate forces. It is because of the absence of a collective agency among academics, one that is grounded in the common production process of the university as a social, co-operative endeavour, that we remain preoccupied with our individual position in the 'marketplace of ideas' (Marx's 'sphere of circulation'), over and above the way we reproduce ourselves through an active dependence on other workers and students.

This emphasis on the social, co-operative character of work in the university/factory is not to say that it somehow defies the capitalist mode of production, but rather that it *exemplifies* it. Recall Marx's chapter in Capital on 'Co-operation', where he states:

> When numerous labourers work together side by side, whether in one and the same process, or in different but connected processes, they are said to co-operate, or to work in co-operation… Co-operation ever constitutes the fundamental form of the capitalist mode of production. (Marx 1996, Chapter 13)

Harney and Moten draw from Burawoy's concept of the "social relations in production" rather than the "social relations of production" to underline this point. What is especially interesting about their argument is that this social labour is not simply constituted by academics, but by both academics and students labouring together. They argue persuasively that academics are continually "repelling" the embodied "threat" that the student's labour power is ultimately equivalent to their own in the production of knowledge, and this resistance is undertaken by "holding steady" the moments of circulation and realisation "as categories of individuality." (Harney and Moten 1998, 174) To assert one's individual identity as an academic is to try to assert one's dignity. To extend an analysis of academic labour only so far as the conditions of that labour is an understandable outcome of trying to preserve some dignity within an inhumane process of real abstraction.

In this way, academics define students as consumers in the exchange relation. It is, in effect, an act of 'hypostatising the concrete', where academics isolate their work and fetishise it as an intellectual craft, in turn isolating the student as an individual consumer of the academic's knowledge product. Turning the

student worker back into the student is an attempt at creating "distance and difference" between the two individuals (Harney and Moten 1998, 174), when in fact, in the capitalist university, both academic and student are relative and equivalent forms of the labour power commodity brought together for exchange, each with a concrete and abstract character. Harney and Moten discuss all of this using the example of affirmative action, but I think that what they are implicitly attempting to reveal is that Marx's theory of 'value-form' can be discovered at the heart of the teaching and learning relationship, between academics and students (Marx 1976, 138-162; Marx, 1978). In this relationship of "productive consumption" (Postone 1993, 383), the labour power commodity of both teachers and students exists as "two poles of the expression of value" (Marx 1976, 139), each relative and equivalent to one-another in the moment of exchange. As such, the exchange relation is also a productive relationship, where production and consumption is "immediate" to one-another (Marx 1973, 90). If we conceive teaching and learning as the expenditure of student and teacher labour power in the production of the knowledge commodity, we begin to recognise that the exchange relation between teacher and student, where each consumes the labour power of the other, is a productive relation, too and not simply one where knowledge is being distributed to consumers in a market for higher education. (Neary and Winn, 2009)

Conclusion

> Central to Marx's conception of the overcoming of capitalism is his notion of people's reappropriation of the socially general knowledge and capacities that had been constituted historically as capital. We have seen that, according to Marx, such knowledge and capacities, as capital, dominate people; such re-appropriation, then, entails overcoming the mode of domination characteristic of capitalist society, which ultimately is grounded in labor's historically specific role as a socially mediating activity. Thus, at the core of his vision of a postcapitalist society is the historically generated possibility that people might begin to control what they create rather than being controlled by it. (Postone 1993, 373)

There is an understandable tendency among critics of the current crisis in higher education to want to restore the university to what it once was, to defend the university from changing into something else, to *resist* the real subsumption of academic labour under capital. I think this misunderstands the university as a means of production and its historical role.

Throughout the twentieth century, there was a gradual process of turning non-productive academic labour power into productive labour by incorporating it into the process of valorisation. (Cleaver 2006; Harvie 2006; Neary 2012; Winn 2013) It should be no surprise that the experiment of neoliberalism has led to the marketisation of higher education, nor that efforts to resist this have been largely impotent. We should recognise that attempts to resist the valorisation of higher education so as to restore an earlier configuration – when the university was not widely perceived as an engine for growth – are misguided.

When critically approaching the university as a means of production for the valorisation of capital, an emancipatory project must first focus on re-appropriating the means of knowledge production through efforts to control the substance of value: the labour process. This, I think, requires new models of democratic higher education organised directly through the co-operation of academic and student labour; models of practice which aim to re-appropriate the 'general intellect' (Marx 1973, 706) and which recognise "the existence of a growing gap between the sort of labour people continue to perform in a society mediated by labor and the sort of labor they could perform, were it not for this 'necessity' of capitalism." (Postone 1993, 370) This effort must be grounded in a thoroughgoing critique of the political economy of higher education that starts from its most simple, immanent categories. It would recognise and develop the significant productive capacity of our existing historical conditions in a way whereby human knowledge or "mass intellectuality" (Dyer-Witheford 1999, 488) is seen as the emancipatory project rather than a resource for valorisation.

In his article, *History and Helplessness, Mass Mobilization and Contemporary Forms of Anticapitalism*, Moishe Postone (2006) discusses the notion of resistance in light of the historical development of

capitalism. He regards the notion of 'resistance' as expressing "a deeply dualistic worldview that tends to reify both the system of domination and the idea of agency." (Postone 2006, 108) For Postone, 'resistance' is "an undialectical category that does not grasp its own conditions of possibility." (2006, 108) His argument implies that the agency of academic labour should not be measured by the extent that we are able to resist or abolish the system of domination, but instead an immanent, dialectical approach would recognise that a post-capitalist university would be developed out of the conditions of possibility that the capitalist university has produced. In other words, an 'anti-capitalist' approach misses both the objective of resistance and its object. What is required is the *overcoming* of the capitalist modes of valorisation. (Postone 2012, 30)

Postone's analysis of capitalism, based on his 're-reading' of Marx, is useful to us for a number of reasons. He shows that capital is a historical mode of production, which structures all social life; it is dynamic and heteronomous. As the 'logic' of all social life, capital is both determinate and appears as a historical necessity. As such, capital renders within and among us a feeling of powerlessness, and contingency is limited to processes of reform or amelioration within the constraints imposed by capital. The achievements of, for example, social democracy, suggest to us a degree of historical indeterminacy and the possibility of freedom, yet they consistently occur within the constraints imposed by capital. For Postone, actual historical indeterminacy (i.e. freedom) can only be realised in a post-capitalist social form of life. An immanent, dialectical critique of capital as a form of social relations (not a material thing as conventionally understood), reveals that what appears as an abstract, mysterious, governing totality, is essentially contradictory and it is the internal tensions of its 'logic', which offer the historical basis for overcoming capitalism. The possibility of overcoming capitalism lies within the contradictions of capitalism itself i.e. within the commodity form. Anti-capitalist efforts typically fetishise the abstract logic of capital in an effort to perceive something to oppose e.g. American hegemony, the State, Bankers. Postone considers this turn from the abstract to the concrete as "an expression of a deep and fundamental helplessness, conceptually as well as politically." (Postone 2006, 102)

Taking this view, our understanding of the mode of knowledge production in higher education and its conceived role and purpose in public life over the last century must start from a categorical understanding of capitalism as the historical mode of production that reproduces the university. This critical, intellectual effort must be combined with practical efforts to gain control of the means of knowledge production so as to question, through praxis, the existing social form of wealth that is mediating our lives on a catastrophic trajectory. By doing so, the character and purpose of academic labour would necessarily change and our existing conditions of work rendered obsolete. The relationship between teacher and student might then be one of direct recognition (i.e. abundance), rather than mediated by the equivalence of value (i.e. scarcity). Through this new pedagogy of excess (Neary and Hagyard 2010), 'academic labour' as we currently understand and experience it would be abolished and its conditions overcome; giving rise to new institutional forms for the satisfaction of human needs that have yet to be designed.

REFERENCES

Barcan, Ruth (2013) *Academic Life and Labour in the New University*, Ashgate Publishing.

Ball, Stephen (2003) The teacher's soul and the terrors of performativity, *Journal of Education Policy*, 18: 2, 215-228

Bérubé, Michael (2013) 'Among the majority'. *Modern Language Association*. 'From the President', retrieved on 2nd June 2014 from http://www.mla.org/blog?topic=146

Bonefeld (2010) Abstract Labour. Against its nature and on its time. *Capital and Class*, 34, 257.

Braverman (1998) *Labor and Monopoly Capital: The Degradation of Work in the Twentieth Century*, Monthly Review Press.

Brown, Roger and Carasso, Helen (2013) *Everything for Sale? The Marketisation of UK Higher Education*. Routledge.

Bryson, Colin (2004) What about the workers? The Expansion of higher education and the transformation of academic work. *Industrial Relations Journal* 35: 1, 38-57

Caffenzis, G. (2008). From the *Grundrisse* to *Capital* and beyond: Then and now, *Workplace*, 15, 59-74

Clarke (1991) *Marx, Marginalism and Modern Sociology. From Adam Smith to Max Weber*. Palgrave Macmillan.

Clarke, Simon (2004) The Neoliberal Theory of Society. In Saad-Filho, Alfredo and Johnston, Deborah (Eds.) *Neoliberalism. A Critical Reader*. Pluto Press.

Cleaver, Harry (2006) *On Schoolwork and the struggle against it*. Retreived on 2nd June from http://la.utexas.edu/users/hcleaver/OnSchoolwork200606.pdf

Cross, John G. and Goldenberg, Edie N. (2009) *Off-Track Profs: Nontenured teachers in Higher Education*, MIT Press.

DeAngelis & Harvie (2009) 'Cognitive Capitalism' and the Rat-Race: How Capital Measures Immaterial Labour in British Universities.

Dyer-Witheford (1999) *Cyber-Marx: Cycles and Circuits of Struggle in High-Technology Capitalism*, University of Illinois Press.

Dyer-Witheford, Nick (2005) Cognitivism Capitalism and the Contested Campus, *European Journal of Higher Arts Education*, 2: 71-93.

Fitzgerald, Tanya and White, Julie and Gunter, Helen (2012) *Hard Labour? Academic Work and the Changing Landscape of Higher Education*. Emerald Books.

Fuchs, Christian (2014) *Digital Labour and Karl Marx*, Routledge.

Gill, R (2009) Breaking the silence: The hidden injuries of neo-liberal academia in Flood, R. & Gill, R. (Eds.) *Secrecy and Silence in the Research Process: Feminist Reflections*, Routledge.

Guardian (2014) 'Dark thoughts: why mental illness is on the rise in academia'. Retreived 2nd June 2014 from http://www.theguardian.com/higher-education-network/2014/mar/06/mental-health-academics-growing-problem-pressure-university

Gulli, Bruno (2009). Knowledge Production and the Superexploitation of Contingent Academic Labor. *Workplace*, 16, 1-30.

Hall, Richard (2013) Educational technology and the enclosure of academic labour inside public higher education, *Journal for Critical Education Policy Studies*, 11: 3, 52-82.

Harney, Stefano and Moten, Frederick (1998) Doing Academic Work, In: Martin, Randy (1998) *Chalk Lines. The Politics of Work in the Managed University*, 154-180, Duke University Press.

Harvie, David (2006) Value production and struggle in the classroom: Teachers within, against and beyond capital, *Capital and Class*, 30: 1, 1-32.

Harvie, David and De Angelis, Massimo (2009) 'Cognitive Capitalism' and the Rat-Race: How Capital Measures Immaterial Labour in British Universities. *Historical Materialism*, 17, 3-30.

Haug, Wolfgang Fritz (2009) Immaterial Labour, *Historical Materialism* 17: 4, 177-185.

Herman, Deborah M. and Schmid, Julie M. (2003) *Cogs in the Classroom Factory. The Changing Identity of Academic Labour*, Praeger Publishers.

Ilyenkov, E. V. (1982) *The Dialectics of the Abstract and the Concrete in Marx's Capital*, Progress Publishers.

Jappe, Anselm (2013) Sohn-Rethel and the Origin of 'Real Abstraction': A Critique of Production or a Critique of Circulation?, *Historical Materialism*, 21: 1, 3-14

Johnson, Benjamin, Kavanagh, Patrick, and Mattson, Kevin (2003) *Steal This University. The Rise of the Corporate University and the Academic Labour Movement*. Routledge.

Kinman, Gail and Wray, Siobhan (2013) *Higher stress. A Survey of stress and well-being among staff in higher education*. UCU. Retrieved 2nd June 2014 from http://www.ucu.org.uk/media/pdf/4/5/HE_stress_report_July_2013.pdf

Krause, Monika; Nolan, Mary; Palm, Michael and Ross, Andrew (2008) *The University Against Itself: The NYU Strike and the Future of the Academic Workplace*. Temple University Press.

Martin, Randy (1998) *Chalk Lines. The Politics of Work in the Managed University*, Duke University Press.

Mattson, Kevin (2000) The Academic Labor Movement: Understanding Its Origin and Current Challenges. *Social Policy*, 30: 4, 4-10.

Marx, Karl (1973) *Grundrisse*, Penguin Classics.

Marx, Karl and Engels, Frederick (1975) *The German Ideology*, Marx and Engels Collected Works Vol. 5, Lawrence and Wishart Ltd.

Marx, Karl (1976) *Capital Volume 1*, Penguin Classics.

Marx, Karl (1978) The Value-Form, *Capital and Class*, 4: 130-150.

Marx, Karl and Engels, Frederick (1987) *1864-68, Letters*, Marx and Engels Collected Works Volume 42. Lawrence and Wishart Ltd.

Marx, Karl (1988) *Economic Works, 1861-1863*, Marx and Engels Collected Works, Vol. 30. Lawrence and Wishart Ltd.

Marx, Karl (1991) *Capital Volume 3*, Penguin Classics.

Marx, Karl (1996) *Capital Volume 1*, Marx and Engels Collected Works, Vol. 35. Lawrence and Wishart Ltd.

Molesworth, Mike and Scullion, Richard and Nixon, Elizabeth (2010) *The Marketisation of Higher Education and the Student as Consumer*. Routledge.

Moten, Fred and Harney, Stefano (1999) The academic speed-up. *Workplace*, 4, 23-28.

Neary Michael and Dinerstein, Ana C. (2002) *The Labour Debate: An Investigation into the Theory and Reality of Capitalist Work*, Ashgate Publishing Company.

Neary, Mike and Winn, Joss (2009) *The student as producer: reinventing the student experience in higher education.* In: *The future of higher education: policy, pedagogy and the student experience*, Continuum.

Neary, Mike and Hagyard, Andy (2010) Pedagogy of Excess: An Alternative Political Economy of Student Life, In Molesworth, Mike, Scullion, Richard and Nixon, Elizabeth (Eds.) *The Marketisation of Higher Education and the Student as Consumer*, Routledge.

Neary, Mike (2012) Beyond Teaching in Public: The University as Form of Social Knowing, In Neary, Michael, Stevenson, Howard and Bell, Les (Eds.) *Towards Teaching in Public. Reshaping the Modern University*, Continuum.

Nelson, Cary (1997) *Will Teach For Food. Academic Labor in Crisis*, University of Minnesota Press.

Ogbonna, Emmanuel and Harris, Lloyd C. (2004) Work Intensification and Emotional Labour among UK University Lecturers: An Exploratory Study, *Organization Studies* 25: 1185.

Pekkola, E. (2013). Academic Work Revised: From Dichotomies to a Typology, *Workplace*, 22, 1-12.

Peters and Bulut (2011) *Cognitive Capitalism, Education, and Digital Labor*, Peter Lang Publishing.

Postone, Moishe (1980) Anti-Semitism and National Socialism: Notes on the German Reaction to "Holocaust", *New German Critique*, 19: 1, 97-115.

Postone, Moishe (1993) *Time, Labour and Social Domination*, Cambridge.

Postone, Moishe (2005) Interview with Moishe Postone by Salih Selcuk, *Krisis*. Retreived on 2nd June 2014 from http://www.krisis.org/2005/critical-theory-of-capitalism-today

Postone, Moishe (2006) History and Helplessness: Mass Mobilization and Contemporary Forms of Anticapitalism, *Public Culture*, 18: 1, 93-110.

Postone, Moishe (2012) Exigency of Time: A Conversation with Harry Harootunian and Moishe Postone, *Concentric: Literary and Cultural Studies* 38: 2, 7-43.

Rhoades, Gary (1998) *Managed Professionals: Unionized Faculty and Restructuring Academic Labour*, State University of New York Press.

Rikowski, Glenn (2002) Fuel for the Living Fire: Labour Power! In Neary and Dinerstein (Eds.), *The Labour Debate: An Investigation into the Theory and Reality of Capitalist Work*, Ashgate Publishing Company.

Rosdolsky, Roman (1977) *The Making of Marx's 'Capital'*, Pluto Press.

Scholz (2013) *Digital Labour: The Internet as Playground and Factory*, Routledge.

Sennett, Richard (1999) *The Corrosion of Character: The Personal Consequences of Work in the New Capitalism*, W. W. Norton and company.

Shattock, Michael (2012) *Making Policy in British Higher Education: 1945-2011* Open University Press.

Slaughter Leslie and Leslie, Larry L. (1999) *Academic Capitalism: Politics, Policies and the Entrepreneurial University*, John Hopkins University Press.

Smyth, John (1995) *Academic Work. The changing labour process in higher education*. SRHE and Open University Press.

Sohn-Rethel (1978) *Intellectual and Manual Labour*, Humanities Press.

Tancred-Sherrif, Peta (1985) Craft, hierarchy and bureaucracy: modes of control of the academic labour process, *The Canadian Journal of Sociology,* 10: 4, 369-390.

Tight, Malcolm (2000) *Academic Work and Life: What it is to be an academic, and how this is changing*. JAI Elselvier Science. London.

UCU (2013) 'Over half of universities and colleges use lecturers on zero hours contracts'. News 5th September. Retrieved on June 2nd 2014 from http://www.ucu.org.uk/6749

Wexler, Steven (2008) (I'm)Material labor in the digital age. *Workplace, 15*, 1-11.

Whitchurch, Celia and Gordon, George (2010) *Academic and Professional Identities in Higher Education: The Challenges of a Diversifying Workforce*. Routledge.

Willmott, Hugh (1995) Managing the Academics: Commodification and Control in the Development of University Education in the UK. *Human Relations*, 48: 9, 993-1027.

Wilson, Tom (1991) The proletarianisation of academic labour, *Industrial Relations Journal*, 22: 4, 250-262.

Winn, Joss (2013) Hacking in the university: Contesting the valorisation of academic labour*, Triple C: Communication, Capitalism and Critique*, 11: 2, 486-503.

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Open education and the emancipation of academic labour

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I have previously argued that open education is a liberal project with a focus on the freedom of things rather than the freedom of people (Winn, Joss. 2012. "Open Education: From the Freedom of Things to the Freedom of People." In *Towards Teaching in Public: Reshaping the Modern University*, edited by Michael Neary, Howard Stevenson, and Les Bell, 133–147. London: Continuum). Furthermore, I have argued that despite an implicit critique of private property with its emphasis on 'the commons', the literature on open education offers no corresponding critique of academic labour (Neary, Mike, and Joss Winn. 2012. "Open Education: Common(s), Commonism and the New Common Wealth." *Ephemera: Theory & Politics in Organization* 12 (4): 406–422). In this paper, I develop my critical position that an emancipatory form of education must work towards the emancipation of teachers and students *from* labour, the dynamic, social, creative source of value in capitalism. In making this argument, I first establish the fundamental characteristics of academic labour. I then offer a 'form-analytic' critique of open access, followed by a corresponding critique of its legal form. Finally, I critically discuss the potential of 'open cooperatives' as a transitional organisational form for the production of knowledge through which social relations become 'transparent in their simplicity' (Marx, Karl. 1976. *Capital*, Vol. 1. London: Penguin Classics, 172).

Keywords: open education; open access; Marxism; value-form; cooperatives

Introduction

Over the past decade, an increasing number of academics, learning developers and university support staff have been campaigning for, developing and constituting the practice of 'openness' in higher education: open source software (OSS), OpenCourseWare (OCW), open educational resources (OER), open education (OE), open access (OA), massive open online courses and open data are increasingly part of the fabric of higher education (Wiley 2006; Kelly, Wilson, and Metcalfe 2007; Gil-Jaurena 2013).

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Despite Peter and Deimann's (2013) effort to situate openness in higher education within a history of education that stretches back to the Middle Ages, the current form of openness in higher education is little more than a decade old. This current form can be distinguished as primarily *legalistic*, grounded in the development of a subversive form of intellectual property licensing that was pioneered by university computer programmers in the 1980s (Stallman 2010) and developed for wider cultural use by law professor, Lawrence Lessig and others, as the Creative Commons (CC) or Free Culture movement (Lessig 2004). The growing accessibility of the internet beyond the confines of the industrial–military–academic complex (Winn 2013) has been combined with this legal virtuosity to form a praxis of openness among educators, students and in fact anyone with the requisite level of 'digital literacy'.

My approach to analysing OE draws from Karl Marx's critique of capitalism, which identifies the imposition of private property and wage-labour as the organising principle of the existing mode of production. This imposition has given rise to a 'determinate logic' (Postone 1993, 285) that continually seeks to alienate labour from its full creative capacity (Wendling 2011) and reduce the necessity of labour-time in the production of value. For capital, the crucial role of all forms of education is to ensure the reproduction and improvement of labour in a historical form that is conducive to the production of value. For the student, education becomes necessary in order to improve the value of the labour power commodity upon which their subsistence depends. That is, the potential of education for personal enrichment is secondary to its value-forming purpose in capitalist society (Rikowski 2011).

I begin this paper by discussing what I mean by 'academic labour' (elaborated further in Winn 2014). This is because we can only critically understand OE if we have an adequate theory of the human labour which produces it. Next, I focus my discussion on providing an analysis of a key aspect of OE and one of its most mature components: OA. In the next section, I develop my theoretical approach to understanding OE and focus specifically on the form and content of open licenses, such as CC. In the final section of this article, I situate OE within a wider effort to overcome the contradiction of the commodification of knowledge, whereby immaterial abundance remains constrained by the imposition of material poverty. In doing so, I suggest that it might be achieved through open, cooperative organisational and institutional forms that progress towards an emancipatory form of education through which human social life becomes the project rather than the resource (Bonefeld 2014).

What is academic labour?

In Marx's critique of political economy, a thing that is produced for consumption by someone other than the producer herself is a 'commodity'. This does not include things that we produce for our dependents, such as making a meal for family and friends. In the critique of capitalism, we are concerned with *general*

commodity exchange at the level of society and not reciprocity in the form of gifts, etc. The *form* of a commodity in its most abstract sense is twofold: a commodity has a 'use-value' and an 'exchange-value'. Use-value is the form of the commodity's 'tangible, sensible form of existence', the 'natural form' of the commodity (Marx 1978, 134). Use-values can be goods or services, both material and immaterial. Exchange-value is how value is socially expressed or appears and has a particular social form: the 'value-form'. Marx discovered that the twofold character of the commodity form is actually an expression of the twofold character of human labour in capitalist societies, so before discussing the product of labour, we must first be clear about the specific, historical form that labour takes.

As a critical category, 'labour' does not refer to the specific *content* of the undertaking (e.g., teaching), but rather to its *form*. As with commodities, Marx determined that labour in capitalist societies also has a dual character: 'concrete labour' and 'abstract labour'. Concrete labour is the physiological and useful work that individuals perform. Through the expenditure of concrete labour, we produce use-values. However, in order to quantify the value of individual concrete labour, it must be treated abstractly as the *equivalent* of other forms of individual labour. Abstract labour is the reduction of individual concrete labour to a qualitatively commensurable social form of labour. It is a reduction into 'a definite quantity of equal, general, undifferentiated, social, abstract labour'; it is 'labour pure and simple, abstract labour; absolutely indifferent to its particular specificity' (Marx 1993, 296). This *equivalence* is confirmed when the product of that individual labour is exchanged, usually for money. 'Abstract labour is a *relation of social validation* that is constituted in exchange' (Heinrich 2012, 50).

Abstract labour is, therefore, a *qualitative* reduction of different types of concrete labour and a reduction of corresponding use-values to *social use-values* – 'use-values for others' (Marx 1976, 131). Once labour has been reduced in this way, it can then be *quantitatively* reduced to the labour time that is socially necessary to perform the labour. 'Socially necessary labour time' is 'the labour time required to produce any use-value under the conditions of production normal for a given society and with the average degree of skill and intensity of labour prevalent in that society' (Marx 1976, 129). All labour throughout history occurs in time, but the value of capitalist labour is measured *socially* by time.

When labour is sold for a wage, it too becomes a commodity with a use-value and an exchange-value. Marx called this 'labour power': 'the aggregate of those mental and physical capabilities existing in the physical form, the living personality, of a human being, capabilities which he sets in motion whenever he produces a use-value of any kind' (Marx 1976, 270; Rikowski 2002). As such, an academic exchanges their *capacity* to produce use-values for a wage, and the way in which that labour power is applied as 'labour' is defined by the employment contract.

As I have tried to emphasise with the brief account above, the importance of understanding Marx's analysis of labour in capitalism cannot be understated. It is, he said, 'the pivot on which a clear comprehension of political economy turns' (Marx 1996, 51). He regarded 'the two-fold character of labour according to whether it is expressed in use-value or exchange-value' as one of his most important discoveries and 'fundamental to all understanding of the FACTS' (Marx 1987, 402). All forms of wage labour and its product can be analysed in this way, including labour in higher education.

OA and the commodity-form

Having established the twofold character of labour in capitalist society and its role as the commodity of labour power, we are now in a position to examine the nature of its products, for example, OA journal articles, books, etc.

OA is defined as having two fundamental attributes: (1) Freedom: it must be free of cost for the reader to access and free of legal restrictions so as to permit re-use of the work and (2) Persistence: it must be deposited in an appropriate online archive which safeguards the longevity of the freedoms defined by the first attribute (Suber 2012). Since the second attribute is in support of the first, I will focus my discussion on the first attribute which is concerned with an exchange relationship of production and consumption. The OA movement is insistent that the reader should have access to the journal article free of cost (*gratis*) through an institutional archive.[1] This is one of two types of freedom that OA is based upon, the second being *libre* (free from some restrictions on re-use) (Suber 2012). I examine the first freedom (*gratis*) in this section of my paper and the second (*libre*) in the next section.

Marx referred to the 'commodity' as the 'elementary form' of wealth. 'Our investigation begins accordingly with the analysis of the commodity' (Marx 1976, 125). That is, we have to unravel how the commodity *appears* in order to understand the totality of capitalist social relations through which it was produced. If a product or service deriving from physical and mental labour has utility and is consumed by someone other than its producer, it has the *form* of a commodity. That is not to say that the owner of the commodity will profit from it or even that it has a *price*, but that it simply takes the *form* of a commodity. If an OA article is a commodity it must, according to Marx's analysis, simply have a use-value and an exchange-value.

In his analysis of exchange-value, Marx determined that the 'value-form' characterizes the exchange of use-values. He analysed the value-form starting from its most abstract and *simple* expression, 'ascending' to its *expanded* form, its *general* form, and finally its concrete *money-form*. 'The secret of the entire value-form must be hidden in this simple value-form' (Marx 1978, 134). In the simple form, two commodities simultaneously play two different roles. Commodity A is the commodity 'which expresses its value in the body of a commodity different from it', commodity B. These 'two poles of the

expression of value' (135) are *relative* and *equivalent* positions. Each commodity 'serves as the material in which value is expressed. The one commodity plays an active and the other a passive role' (134). An example would be: a litre of milk is worth half a dozen eggs.

If we stopped here in our analysis, we might conclude that the OA journal article is *not* a commodity because it is not being *directly* exchanged (i.e., bartered) for another commodity, as in the simple value-form. However, Marx's elucidation of the simple value-form is pedagogic. Although historically such simple exchange did take place, the presentation of Marx's analysis is not historical–logical but dialectical (Bellofiore and Redolfi Riva 2015). The simple value-form is the key to understanding the capitalist form of value because it follows that if a single commodity can be relative in value to another single commodity, then it can also be relative to other commodities. Marx called this next stage in his presentation the 'expanded value-form'. Therefore, commodity A is not just exchangeable with commodity B, but also with commodity C, D, E and so on. An example would be a litre of milk is worth half a dozen eggs or 100 g of tea or one bus ride, etc.

Marx identified three 'deficiencies' of the 'expanded value-form'. In such exchange relations, there is no 'conclusion' in a final expression of value, such as money. As such, the value of a commodity is only ever expressed in a limited number of equivalent commodities while excluding others. Furthermore, the human labour contained by the commodity is only ever expressed in a particular commodity, rather than a general unified form. Thus, just as we moved from an analysis of the simple form to the expanded form, we must also move from the expanded form to the 'general value-form'. In this overall analytical transition from the simple to the expanded to the general and eventually the money-form, we move to an overall more *social* form of commodity exchange, which can only operate through increasing levels of abstraction in daily life. With the general value-form a commodity becomes relative to *any* other commodity. It becomes 'simple and common, i.e. general'. An example would be a litre of milk is worth half a dozen eggs, 100 g of tea, one bus ride, etc. In our case, the OA journal article 'now counts for the bodies of all the different sorts of commodities as their common and general shape of value' (Marx 1978, 146). The expression of value in the OA journal article,

> now distinguishes the commodity not only as value from its own existence as a useful object, i.e. from its own natural form, but at the same time relates it as value to all other commodities, to all commodities as equal to it. Hence in this value-form it possesses general social form. (Marx 1978, 146)

What is crucial about the transition to the general value-form is that it is from here that we understand how labour is the source of social wealth, that is, 'value'. Here, a commodity becomes an expression of the general, undifferentiated form of labour: abstract labour.

Throughout his analysis, Marx used linen and coats as his examples of commodities and weaving and tailoring as the respective types of labour:

> Only through this general character does the value-form correspond to the concept of value. The value-form had to be a form in which commodities appear for one another as a mere jelly of undifferentiated, homogenous human labour, i.e. as expressions in the form of things of the same labour-substance. This is now attained. For they are all material expressions of the same labour, of the labour contained in the linen or as the same material expression of labour, namely as linen. Thus they are qualitatively equated. (Marx 1978, 146–147)

At this point in his elucidation of the value-form of commodities, Marx has determined that just as all commodities are relative to one another, each can also take on a general, social form of equivalence. The 'natural form' of a commodity (e.g., the specific character of the OA journal article) 'is therefore at the same time its general social form' (Marx 1978, 147). That is, all use-values that can be exchanged also possess a general social form whereby they can be understood as equivalent to any other use-value:

> For all other commodities, although they are products of the most different sorts of labour, the linen counts as the form of appearance of the labours contained in them, hence as the embodiment of homogenous undifferentiated human labour. Weaving – this particular concrete type of labour – counts now by virtue of the value-relation of the world of commodities to linen as the general and immediately exhaustive form of realisation of abstract human labour, i.e. of the expenditure of human labour-power as such.
>
> For precisely this reason the private labour contained in linen also counts as labour which is immediately in general social form or in the form of equality with all other labours. If a commodity thus possesses the general equivalent-form or functions as general equivalent, its natural or bodily form counts as the visible incarnation, the general social chrysalis of all human labour. (Marx 1978, 147)

If we simply replace 'linen' with 'open access journal article' and 'weaving' with 'researching', does Marx's analysis still hold? Yes, of course because there is a common qualitative substance shared by both the linen and the OA article, one common to both the labour of an academic and the labour of a weaver: human abstract labour. Thus, the labour of the academic who writes the OA article cannot be conceived in isolation from all other products of labour being exchanged in the social world of capitalism. Under capitalism, individual labour is at the same time social labour.

In Marx's analysis of the value-form, the 'general form' of value, explains how commodities share the same qualitative substance of abstract labour but in the process of exchange one commodity's relationship with another remains exclusive to another specific commodity, that is, the OA article is exchangeable with any other commodity, but still within the logic of bartering one thing for another. As Marx noted, '[t]he general equivalent-form is a form of value as

such. It can therefore pertain to any commodity, but always only by exclusion from all other commodities' (1978, 148).

Historically, Marx argued that, a necessary *universally equivalent* form of value was developed; one that overcomes the exclusive limitation of the general value-form. That universal equivalent is the commodity of *money*:

> Now the specific type of commodity with whose natural form the equivalent form coalesces socially becomes the money-commodity or functions as money. Its specific social function and hence its social monopoly becomes the playing of the role of general equivalent within the world of commodities. (Marx 1978, 149)

We have seen that from this explication of the commodity-form, it must have a use-value and an exchange-value, and at this formal level of analysis the specific *price* of the commodity is irrelevant. As we know, the price of something does not indicate whether the exchange will realise a profit ('surplus value'). In some cases, commodities might be sold below their production costs so as to get rid of them urgently, or as 'loss leaders' to entice related purchases. We must not confuse the idea of something having a price or making a profit, with the distinction of whether it takes on the *form* of a commodity.

Of course, most commodities *are* priced so that their direct exchange for money *does* produce a surplus of value over and above the total cost of production, which begs the questions, 'how and why can OA journal articles be made available for free?' This is the perennial question that concerns some academics and their institutions but mainly the publishing industry and policy-makers (Finch 2012; Vincent and Wickham 2013). Various business models and measures of 'impact' are currently being discussed and implemented (Bastow, Dunleavy, and Tinkler 2014; HEFCE 2014), which are intended to demonstrate the value of academic research, and it is here where the role of abstract labour as the substance of value becomes most clearly articulated. The journal article:

> is *value* only to the extent that it is *the expression, in the form of a thing, of the human labour-power expended in its production* and thus insofar as it is a *jelly of abstract human labour – abstract labour*, because *abstraction* is made from the definite useful concrete character of the labour contained in it, *human labour*, because the labour counts here only *as expenditure of human labour-power as such*. (Marx 1978, 136–137)

As a universal equivalent, money does not need to be exchanged *directly* for the *individual product* in which the value of labour *appears* to be invested. As we have seen, the simple form of value sufficiently articulates that *in any such exchange it is always abstract labour acting as the relative value-form and money as the equivalent form*. As an individual's labour power assumes an abstract form it becomes 'congealed' (Marx 1976, 128) into the social body of labour within the institution employing it and can meet its equivalent in

money through a variety of possible exchanges. Thus, the journal article accessed freely from a university research repository is not directly exchanged for money, but money is still *anticipated* by the institution in exchange for this provision. The university has *advanced* some money in the form of a wage (Heinrich 2012, 120) to the academic who has produced the OA article, which is made available at zero price and the expectation is that a return will be made in the form of money (grants, tuition fees, consultancy, patents, etc.) in exchange for that initial advance.

In short, wherever there is wage labour, there is concrete and abstract labour and therefore the corresponding characteristics of its product: the commodity with a use-value and an exchange-value. The universality of the money-form means that one does not have to engage in the 'simple' and direct exchange of one commodity for another, for as long as the value of social, abstract labour is exchanged with its equivalent value in the form of money (i.e., the monthly wage is advanced not spent), then some products of labour which take the form of commodities can appear to be 'given away'. What this analysis points to is that the current debates around OA represent a struggle with capital over the form and purpose of academic labour. It is a struggle not simply over the freedom to access and re-use knowledge but rather one that implicitly questions the conversion of academic labour into money.

Licenses and the law of labour

> Right can never be higher than the economic structure of society and its cultural development which this determines. (Marx 1989, 87)

> Law is not a set of coercive rules, but a tangible expression of a social form with a predetermined historical content, namely the commodity nature of the products of labour under a regime of absolute property. (Kay and Mott 1982, 94)

So far, I have established that an OA journal article, which is free (*gratis*) at the point of exchange, takes the *form* of a commodity that expresses the *form* of labour. Next, I want to argue that the *legal form* of 'open (*libre*) licenses' such as CC is itself derived from the *commodity-form* and within the existing economic structure of society and its cultural development represents a subversive, transitional expression of *right* under a regime of absolute property.

We have seen that, according to Marx's critique of political economy, the commodity is the 'economic cell-form' (Marx 1976, 90) of the capitalist mode of production. As such, the commodity-form is the *premise* for other social forms and thus,

> In as much as the wealth of capitalist society appears as 'an immense collection of commodities', so this society itself appears as an endless chain of legal relations. (Pashukanis 1989, 85)

This is the argument made in the early twentieth century by the Russian legal scholar Pashukanis (1989) and more recently by Mieville (2005) in his study of international law. By examining open licenses through Pashukanis' 'general theory' of law, we are able to show how key features of such licenses both express and subvert the commodity-form and can be understood to represent the movement towards a new form of social wealth.

The use of open licenses such as CC is an essential component and characteristic of the OE movement. As well as being fundamental to the definition of OA journal articles, books, etc., such licenses are part of what also defines OER (Cape Town Open Education Declaration 2007). The specific choice of license conforms to existing socially accepted norms. For OERs, the most common type of license is a 'copyleft' license that requires creators of derivative works to apply the same type of license as the originating work (Stallman 2002, 89–93). For example, the Peer-to-Peer University uses a CC BY-SA (Creative Commons, Attribution, Share-Alike) license[2] and Massachusetts Institute of Technology's OCW uses a CC BY-NC-SA (non-commercial) license.[3] Over 80% of individuals who have deposited OERs in the UK's Jorum repository have chosen a copyleft/share-alike license, and of those over 90% carry the non-commercial clause.[4] Thus, we can say that the current social custom is to apply a non-commercial copyleft license to OER.

For OA articles, the social custom is quite different, although gradually changing. Research Councils and major publishers agree on the use of a non-copyleft, or 'permissive' CC BY license, free of most restrictions but requiring attribution for the creator of the work (RCUK 2013). However, the actual adoption of this license to-date remains relatively small and the preference among authors and many smaller journals is for no license, that is, protected by copyright but accessible without charge (*gratis* rather than *libre*) or for CC BY-NC-ND, thus not conforming to the basic definition of OA (Herb 2014; Taylor and Francis 2014).

In his introduction to Pashukanis' major work, *The General Theory of Law and Marxism*, Arthur argues that Pashukanis provides a materialist approach to a theory of law which can be distinguished from 'a radicalism that unconsciously remains imprisoned within a bourgeois frame of reference' (Pashukanis 1989, 9). Such 'radicalism' today is epitomised by much of the free culture movement; what Coleman has identified in open source culture as a 'liberal critique from within liberalism' (Coleman 2012, 3). In contrast, a materialist approach is not only concerned with the *content* of the legal regulation, but also its *form*, recognizing that law is the 'necessary expression of the economic content at a specific level of the social structure' (Pashukanis 1989, 11). As such, this approach to analysing 'the law', that is, legal regulation, through the 'law form', conforms to Marx's critical method whereby concrete features of social life can only be fully understood as the concentration of historical, determinate abstractions:

> The concrete is concrete because it is the concentration of many determinations, hence unity of the diverse. It appears in the process of thinking, therefore, as a process of concentration, as a result, not as a point of departure, even though it is the point of departure in reality and hence also the point of departure for observation and conception. … the abstract determinations lead towards a reproduction of the concrete by way of thought. (Marx 1993, 101)

In his book, Pashukanis devotes the first chapter to discussing this method of 'rising from the abstract to the concrete'. On the basis of this scientific method, he argues,

> Hence law in its general definitions, law as a form, does not exist in the heads and theories of learned jurists. It has a parallel, real history which unfolds not as a set of ideas, but as a specific set of relations which men enter into not by conscious choice, but because the relations of production compel them to do so. Man becomes a legal subject by virtue of the same necessity which transforms the product of nature into a commodity complete with the enigmatic property of value. (Pashukanis 1989, 68)

Through a dialectical analysis of the legal form and its content, Pashukanis demonstrates that just as Marx had shown how bourgeois categories of economics reflect the development of bourgeois society and are inadequate for reflexive critical inquiry legal categories also reflect aspects of the bourgeois historical subject which is based on the production of commodities, that is, the commodity-form. Thus,

> we must start with an analysis of the legal form in its most abstract and pure shape and then work towards the historically concrete by making things more complex … . Only then shall we comprehend law not as an appendage of human society in the abstract, but as an historical category corresponding to a particular social environment based on the conflict of private interests. (Pashukanis 1989, 71–72)

Having established my basic methodological and theoretical approach to analysing the role and character of open licenses in the OE movement, I now want to offer a more detailed analysis of the legal form of OE and argue that certain characteristics of the *content* of its adopted licenses indicate an immanent movement towards the dissolution of liberal subjectivity, despite remaining within the confines of the law *form*.

Copyright, which is the legal basis for open licenses, exists to affirm and protect the private interests of a legal subject who has invested labour time in their product. As *equal legal subjects*, both parties in an exchange relation are set in opposition to each other and the law protects them from the possibility of dispute. In a hierarchical society based on relations of command, the potential for such dispute between two equal subjects is absent but in a capitalist society based fundamentally on the idea and practice of equivalence, the possibility of dispute between two rights holders is *always* implied (Mieville 2005, 79). In this context, we see why a license is a form of contract through which

'the property holder effectively promises not to sue someone else for actions that would ordinarily infringe the property holder's exclusive rights' (Lindberg 2008, 135). It explicitly extends the rights over the use of an individual's property in a way that seeks to avoid contestation.

CC licenses rest on the authority of copyright, a property law based on the principles of *expression* and *defaults*. 'Expression' refers to 'personal expression in all its varieties' (Lindberg 2008, 72) and 'defaults' refers to the application of copyright law to a creative expression without the need to register ownership, but rather it is protected by default from the moment it is 'fixed in a tangible medium of expression' (76). This law permits the copyright holder to permissively extend the legal regulation of their property in a way that anticipates and promotes a clearly defined type of exchange. 'At its core, open source is *a legal construct for the cooperation and trade in intellectual property*' (155). Similarly, OE is based on a legal construct for the cooperation and trade in intellectual property.

In developing a framework for understanding open source, Lindberg uses the analogy of credit unions, arguing that like credit unions, open source projects can be understood as 'cooperative model organisations' (Lindberg 2008, 155) as distinct from corporate model organisations. 'The first and most fundamental feature distinguishing corporate and cooperative organisations is *ownership*' (156). In the cooperative organization, the interests of its members are aligned around shared control and effective ownership of the property, that is, copyright. 'Membership' is based on the fact that each has 'refused to exercise the prerogatives of exclusive personal ownership' (157). Where no money exchanges for openly licensed goods, a 'barter of value between contributors' still remains. Like open source, OE is free 'only if your time has no value' (159, quoting Zawinsky).

This latter point is the key to understanding and developing a critique of open licenses as they pertain to the production of commodities. Although the work is usually free (*gratis*), in the case of OA journal articles and OERs, the work still embodies the wage labour of the individual creator(s), measured by the labour time socially necessary to produce the commodity. The advance of the wage by the academic's employer naturally anticipates a return of some kind in the form of money; such is the basis of the contract between employer and employee: the exploitation of labour power so as to produce surplus value.

Reflecting labour legislation, the employment contract is a form of mutual recognition of rights between employer and employee over the exchange of the labour power commodity for money, just as the license is a form of mutual recognition of rights between abstract and equal subjects over the exchange of a use-value such as a journal article. Both the commodity of labour power and the commodity of the journal article are forms of property as defined by their respective employment and copyright contracts. It is at the point of exchange, of converting labour power into labour, use-value into exchange-value, that the abstraction of 'right' comes into force and is first

defined by default in copyright law and simultaneous extended through the rights asserted by the license contract. The specific legal claims of each license will differ but the abstract form of right necessarily accompanies the abstraction of labour as it moves from the production of use-values to their distribution and circulation.

By default, it is the copyright license (e.g., CC) that validates the OA article as a use-value (property) for exchange (a commodity). The license not only permits an actual exchange between subjects with equal rights but its existence always *implies* an exchange of property between equal legal subjects. In this way, the legal content of the license itself is an expression of the abstract legal form that is derived from the value-form of equivalence. The dialectic at work with the use and promotion of open licenses is that their content promotes the cooperative production and exchange of use-values over and above their realisation of surplus value, yet they do so according to a legal form which has as its end objective the circulation of commodities (Pashukanis 1989, 100).

The origins of OE as it is understood today are in the free and OSS movement. Weber argues that for open source communities, 'licenses act as the practical manifestation of a social structure that underlies the open source process'. The use of these licenses acts as 'an ordering device' in the absence of an organisation so that 'licensing schemes are, in fact, the major formal social structure surrounding open source' (Weber 2004, 85). Pashukanis' analysis goes deeper to show how the 'major formal social structure' is in fact the commodity-form, from which the law form and its expression in contract law are derived. This distinction between legal form, the law and its role in structuring social relations is resolved by Mieville, who argues that *administration* within civic and corporate life is a concrete expression of the abstract legal form:

> Administration is law: it is somewhat removed from private law, where the legal form exists in its 'purest' form, but administration – public law – is directly derived from that form. Only in the context of generalized commodification and juridical relations does administration manifest through the specific form of 'administrative law'. (Mieville 2005, 110)

In the absence of an organisational form, open licenses mediate social relations. Along with a technical apparatus that is defined by protocol, licenses also fulfil a need for administration in the context of decentralisation (Galloway 2004).

Like open source, OE is an expression of cooperative labour which is dialectically subjected to the legal form of commodity production yet undermines the 'natural' authority of that form through the *subversive content* of its licenses which act as a form of administration in the absence of specific organisational structures. This particular combination of openness and cooperativism has recently led to the proposal of 'open cooperatives', which seek to ground the principles and objectives of openness in the values and principles of the

cooperative movement, thus attempting to resolve the contradiction of immaterial abundance and material poverty. In the next section, I will introduce work that is emerging in this area.

Open educational cooperatives

A dialectical tension exists within OE between the distributed, 'networked' possibility of abundance and the private, corporate institutional form of the universities that sustain it. Although the values of openness, sharing and consensus are clearly shared by many academics and students, the administration of universities is increasingly being subjected to undemocratic executive control, marketisation and financial speculation (McGettigan 2013). This tension has been conceived by Kelty more generally in terms of a 'recursive public', 'a public that is constituted by a shared concern for maintaining the means of association through which they come together as a public' (Kelty 2008, 28). In the case of OE, it raises the question of which organisational form is adequate as a means of association that constitutes the shared concerns of its practitioners.

Recently, 'open cooperatives' have been advocated as a new, progressive organisational form to address the 'paradox' of immaterial abundance existing alongside material scarcity (Bauwens 2014; Bauwens and Kostakis 2014). What fundamentally distinguishes these from other forms of cooperative is the promotion of a new type of open license, referred to as 'Commons-Based Reciprocity Licenses':

> The key rules of such licenses are: 1) the commons are open to non-commercial usage 2) the commons are open to common good institutions 3) the commons are open to for-profit enterprises who contribute to the commons. The exception introduced here is that for-profit companies that do not contribute to the commons have to pay for the use of the license. This is not primarily to generate income, but to introduce the notion of reciprocity in the market economy. In other words, the aim is to create an ethical economy, a non-capitalist market dynamic. (Bauwens 2014)

An example of such a license is the Peer Production License (PPL), a so-called 'copyfarleft' license created by Dmytri Kleiner.[5] The PPL is based on the CC BY-NC-SA v3.0 license with an additional restriction (Peer Production License). Like the CC license, the PPL requires the consumer of the commodity to 'share alike' by licensing any derivative commodity under the same terms. This strategically develops a commons of *social property*. This social property is not 'public' in terms of regulated by the state nor individually or collectively 'private' as in joint-stock. The PPL also asserts that no commercial use shall be made of the commodity meaning that it cannot be used for commercial advantage or private monetary gain, that is, profit. This attempts to resist the *exploitation* of the cooperative's labour for the creation of surplus value. The license

also asserts that attribution be given to the originating producer of the commodity. This resists the dissolution of the property into the public domain and ensures that the originating producer(s) are credited for their contribution. It also adds a dimension of transparency as to the *provenance* of each contribution. This is important for a system that is based on any kind of reciprocity. The unique addition to these restrictions in the PPL is an exception to the non-commercial clause stating that commercial use *can* be made of the product by democratic, *worker-owned organisations* that distribute their profits (surplus) among themselves, for example, worker cooperatives. This is to allow the re-use of the social property of cooperatives in their mutual interest of building a commons. It applies to the immaterial, non-rivalrous knowledge products of the cooperatives and permits a restricted type of quasi-commercial practice among cooperatives while resisting the dissolution of the commons into the anti-social private sphere.

A key part of the debate[6] around open cooperatives and the PPL focuses on the form that reciprocity would take. For Bauwens and Kostakis, commons-based reciprocity licenses like the PPL would 'limit the non-reciprocity for for-profit entities, however they would not demand equivalent exchange, but only some form of negotiated reciprocity' (Bauwens and Kostakis 2014, 359). Such reciprocity is deemed 'direct', unlike non-reciprocal licenses such as the General Public License (GPL), which they describe as 'communistic' in contrast to their 'socialist' form of license.

Although they do not draw directly on the text, their argument aligns with that of Marx in the *Critique of the Gotha Programme* (Marx 1989). In that late text, he anticipates a staged transition from capitalism to communism, recognising that the bourgeois principle of 'equal right' would persist until it evidently became anachronistic to the economic structure of society:

> What we are dealing with here is a communist society, not as it has developed on its own foundations, but on the contrary, just as it emerges from capitalist society, which is thus in every respect, economically, morally and intellectually, still stamped with the birth-marks of the old society from whose womb it emerges. (Marx 1989, 85)

It is fundamental to Marx's historical materialist theory and method that the specific historical mode of production produces culture (Marx and Engels 1975, 31–32). In a transition from one mode of production to another, social relations will retain their earlier form despite growing evidence of their contradictory nature. Marx identifies the principle of 'equal right' as a 'bourgeois limitation' that will gradually become redundant through the development of economic forces; an inevitable defect in the 'first phase of communist society'. He explains that 'Right, by its very nature, can consist only in the application of an equal standard' (Marx 1989, 86–87) recognising that individuals differ but under the capitalist mode of production individuals become equal

legal subjects: abstract labour. Marx attacks the idea of the 'fair distribution of the proceeds of labour' (84), arguing that what we might consider 'fair' today, is only so from the standpoint of the capitalist mode of production and should not be assumed so for post-capitalist society. Such terms are 'dogmas, ideas which in a certain period had some meaning but have now become obsolete verbal rubbish' (87).

Bauwens and Kostakis repeatedly emphasise that their advocacy of commons-based reciprocity is strategic, arguing that licenses such as the GPL do not recognise the actual, existing need for direct forms of reciprocity should we wish to establish an 'autonomous sphere of peer production' apart from capital. Such reciprocity is only demanded from for-profit firms as a way to ensure that they contribute to the growth of the cooperative commons. In this way, commons-based reciprocity licenses are an attempt to halt the accumulation by capital of value produced by cooperatives, allowing for its non-reciprocal, 'share alike' redistribution within the cooperative sphere. This emphasis on *distribution* is a conscious intervention to transform *production*. They argue that such licenses:

> are not merely about redistribution of value, but about changing the mode of production. Our approach is to transform really existing peer production, which is today not a full mode of production being incapable of assuring its own self-reproduction. This is exactly why the convergence of peer production in the sphere of abundance must be linked to the sphere of co-operative production, and thus insure [sic] its self-reproduction. (Bauwens and Kostakis 2014, 360)

Bauwens and Kostakis have been criticised for advocating measures to resist capital, while retaining many of its key categories (Rigi 2014, 393–394). Yet their approach should be seen as strategic and grounded in their own evaluation of our present economic structures and the overwhelming persistence of the bourgeois principle of equal right. As such, their proposals require serious consideration while recognising that they are not conclusive in terms of overcoming the capitalist mode of production. The key to that task is to overcome the naturalisation of the idea of reciprocity as *equivalence* through the abolition of its social substance: value.

What does it mean to abolish value? It means that the 'value-form' (the exchange of relative and equivalent use-values) no longer mediates our social relations as it does today; it means that the commodity-form no longer determines our social relations. Since the commodity-form is nothing more than the expression of the dual character of labour, we find that the abolition of value is in fact *the abolition of labour*, that is, the abolition of the abstract, social, homogeneous form of labour brought about due to the division of labour and its corresponding institution of private property. With this uniquely capitalist, qualitative form of labour abolished, its measure of 'socially necessary labour time' would be redundant. In moving towards this form of social relations, labour, according to Marx, would transition gradually from being

'indirect' as it is now, mediated by a specific form of exchange, to being 'direct labour', characterised not by equivalence, but by the social custom of 'from each according to their abilities, to each according to their needs'. Such a social custom is not the product of the creation of a new form of *exchange*, but rather a new mode of *production* based on freely associated concrete labour. Freedom then, is freedom from abstract labour measured by socially necessary labour time (i.e., freedom from value). The challenge for both open cooperatives and OE is to work towards the creation of a new, sustainable form of social wealth that is built upon the general social knowledge developed through and beyond the capitalist mode of production. To this end, an increasing number of academics and activists are now working to develop cooperative forms of higher education,[7] which like open cooperatives, might be based on the worker cooperative model and therefore a radically different configuration of academic labour, property and pedagogy than that which exists in mainstream higher education (Social Science Centre 2013; Winn forthcoming).

Conclusion

> Let us therefore, in company with the owner of money and the owner of labour-power, leave this noisy sphere, where everything takes place on the surface and in full view of everyone, and follow them into the hidden abode of production. (Marx 1976, 279)

In this paper, I have attempted to analyse the 'hidden abode' of OE through a critique of OA and its legal form. In doing so, I have often departed from a direct discussion of how OE appears in terms of its content and tried to develop an analytical critique of its main forms. In the final section, I have discussed recent proposals to cooperatively and materially constitute abundance against the logic of property or absolute poverty.

Historian, Postone (1993), argues that industrial production is intrinsic to capitalism and that post-capitalism will be characterised by a post-industrial form of production. The Peer-to-Peer production of knowledge and its material effects could be, as Bauwens and Kostakis argues, a 'proto-mode of production' for a future society (Bauwens and Kostakis 2014, 358), and producer cooperatives of freely associated labour could be its organisational form. Furthermore, the successful creation of a post-capitalist society will require a thoroughly global perspective, rather than a retreat into localism and guild-like modes of production and it will build on the achievements of capitalism as a highly productive, though devastating, historical mode of production.

Based on the distributed production of general, social knowledge, OE offers a vivid example of Marx's notion of the 'general intellect', whereby the achievements of cumulative human knowledge (e.g., science and technology) indicate:

> to what degree general social knowledge has become a direct force of production, and to what degree, hence, the conditions of the process of social life itself have come under the control of the general intellect and been transformed in accordance with it. (Marx 1993, 706; Neary and Winn 2009)

Yet the mobilisation of the general intellect increasingly renders the need for human labour superfluous, despite it being the very thing on which capitalist expansiveness is based. The task for the OE movement is to assess how the material conditions upon which it thrives are, under the logic of commodity production, antithetical to the role of labour that is the substance of its value. What is required is for some of the extraordinary human energy contained in that labour to be directed towards forms of immanent, critical inquiry that aim to establish new forms of free association and the requisite social and organisational forms to sustain them as prefigurative of a future beyond the law of labour.

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No potential conflict of interest was reported by the author.

Notes on contributor

Joss Winn's work focuses on the history and political economy of science and technology in higher education, its affordances for and impact on academic labour, and the way by which academics can control the means of knowledge production through co-operative and ultimately post-capitalist forms of work and democracy.

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Notes

1. I am aware of the difference between 'green' and 'gold' and even 'diamond' OA. Here, I am trying to offer an abstract analysis of the ideal of OA as set out in the OA definition.
2. https://p2pu.org/en/pages/license/.
3. http://ocw.mit.edu/terms/.
4. This was the case on 30 June 2014, having undertaken a search, filtered by license. http://find.jorum.ac.uk/.
5. For material goods, the practice of 'Venture Communism' is advocated (http://p2pfoundation.net/Venture_Communism). I do not have space to discuss this aspect of open cooperatives here and in the context of open education must give priority to immaterial commodity exchange.
6. See Vieira and De Filippi (2014); Bauwens and Kostakis (2014); Meretz (2014); and Rigi (2014)

7. I currently maintain a bibliography which records this work: http://josswinn.org/2013/11/co-operative-universities-a-bibliography/.

References

Bastow, Simon, Patrick Dunleavy, and Jane Tinkler. 2014. *The Impact of the Social Sciences. How Academics and their Research Make a Difference*. London: Sage.

Bauwens, Michel. 2014. "Why We Need a New Kind of Open Cooperatives for the P2P Age." P2P Foundation. Accessed July 18, 2014. http://blog.p2pfoundation.net/why-we-need-a-new-kind-of-open-cooperativism-for-the-p2p-age/2014/06/16.

Bauwens, Michel, and Vasilis Kostakis. 2014. "From the Communism of Capital to Capital for the Commons: Towards an Open Co-operativism." *tripleC: Communication, Capitalism and Critique* 12 (1): 356–361.

Bellofiore, Riccardo, and Tommaso Redolfi Riva. 2015. "The Neue Marx-Lektüre Putting the Critique of Political Economy Back into the Critique of Society." *Radical Philosophy*, 189: 24–36.

Bonefeld, Werner. 2014. *Critical Theory and the Critique of Political Economy: On Subversion and Negative Reason*. London: Bloomsbury.

"Cape Town Open Education Declaration." 2007. Accessed July 18, 2014. http://www.capetowndeclaration.org/read-the-declaration.

Coleman, E. Gabriella. 2012. *Coding Freedom. The Ethics and Aesthetics of Hacking*. Princeton, NJ: Princeton University Press.

Finch, Janet. 2012. "Accessibility, Sustainability, Excellence: How to Expand Access to Research Publications." Accessed July 18, 2014. http://www.researchinfonet.org/publish/finch/.

Galloway, Alexander R. 2004. *Protocol. How Control Exists after Decentralization*. Cambridge: MIT Press.

Gil-Jaurena, Inés. 2013. "Openness in Higher Education." *Open Praxis* 5 (1): 3–5.

HEFCE. 2014. "Independent Review of the Role of Metrics in Research Assessment." Accessed July 18, 2014. http://www.hefce.ac.uk/whatwedo/rsrch/howfundr/metrics/.

Heinrich, Michael. 2012. *An Introduction to the Three Volumes of Karl Marx's Capital*. New York: Monthly Review Press.

Herb, Ulrich. 2014. "Total Numbers and Shares of Open Access Journals using Creative Commons Licenses as listed by the Directory of Open Access Journals." Accessed July 18, 2014. http://dx.doi.org/10.5281/zenodo.8327.

Kay, Geoffrey, and James Mott. 1982. *Political Order and the Law of Labour*. London: The Macmillan Press.

Kelly, Brian, Scott Wilson, and Randy Metcalfe. 2007. "Openness in Higher Education: Open Source, Open Standards, Open Access." In *ELPUB2007, Openness in Digital Publishing: Awareness, Discovery and Access – Proceedings of the 11th International Conference on Electronic Publishing*, edited by Leslie Chan and Bob Martens, 161–174.

Kelty, Christopher M. 2008. *Two Bits. In the Cultural Significance of Free Software*. London: Duke University Press.

Lessig, Lawrence. 2004. *Free Culture: How Big Media Uses Technology and the Law to Lock Down Culture and Control Creativity*. London: Penguin.

Lindberg, Van. 2008. *Intellectual Property and Open Source. A Practical Guide to Protecting Code*. Sebastopol: O'Reilly.

Marx, Karl. 1976. *Capital*, Vol. 1. London: Penguin Classics.

Marx, Karl. 1978. "The Value-Form." *Capital and Class* 2: 130–130. doi:10.1177/030981687800400110.
Marx, Karl. 1987. "1864–68, Letters." In *Marx and Engels Collected Works*, Vol. 42. London: Lawrence and Wishart.
Marx, Karl. 1989. "Critique of the Gotha Programme." In *Marx and Engels Collected Works*, Vol. 24. London: Lawrence and Wishart.
Marx, Karl. 1993. *Grundrisse*. London: Penguin Classics.
Marx, Karl. 1996. "Capital Volume 1." In *Marx and Engels Collected Works*, Vol. 35. London: Lawrence and Wishart.
Marx, Karl, and Frederick Engels. 1975. "The German Ideology." In *Marx and Engels Collected Works*, Vol. 5. London: Lawrence and Wishart.
McGettigan, Andrew. 2013. *The Great University Gamble: Money, Markets and the Future of Higher Education*. London: Pluto Press.
Meretz, Stefan. 2014. "Socialist Licenses? A Rejoinder to Michel Bauwens and Vasilis Kostakis." *tripleC: Communication, Capitalism and Critique* 12 (1): 362–365.
Mieville, China. 2005. *Between Equal Rights. A Marxist Theory of International Law*. Leiden: Brill.
Neary, Mike, and Joss Winn. 2009. "The Student as Producer: Reinventing the Student Experience in Higher Education." In *The Future of Higher Education: Policy, Pedagogy and the Student Experience*, edited by Les Bell, Howard Stevenson, and Mike Neary, 135. London: Continuum.
Pashukanis, Evgeny B. 1989. *Law and Marxism. A General Theory*. London: Pluto Press.
"Peer Production License." Accessed July 18, 2014. http://p2pfoundation.net/Peer_Production_License.
Peter, Sandra, and Markus Deimann. 2013. "On the Role of Openness in Higher Education: A Historical Reconstruction." *Open Praxis* 5 (1): 7–14.
Postone, Moishe. 1993. *Time, Labour and Social Domination*. Cambridge: Cambridge University Press.
RCUK. 2013. "RCUK Policy on Open Access." Accessed July 18, 2014. http://www.rcuk.ac.uk/research/openaccess/policy/.
Rigi, Jakob. 2014. "The Coming Revolution of Peer Production and Revolutionary Cooperatives. A Response to Michel Bauwens, Vasilis Kostakis and Stefan Meretz." *tripleC : Communication, Capitalism and Critique* 12 (1): 390–404.
Rikowski, Glenn. 2002. "Fuel for the Living Fire: Labour Power!" In *The Labour Debate: An Investigation into the Theory and Reality of Capitalist Work*, edited by Michael Neary and Ana Dinerstein, 179–202. Aldershot: Ashgate.
Rikowski, Glenn. 2011. "Capitorg: Education and the Constitution of the Human in Contemporary Society." Paper presented at the Praxis & Pedagogy Research Seminar, The Graduate School of Creative Arts and Media (GradCAM), Dublin, Ireland, May 25.
Social Science Centre. 2013. "An Experiment in Free, Co-operative Higher Education." *Radical Philosophy* 182: 66–67.
Stallman, Richard. 2002. *Free Software Free Society: Selected essays of Richard Stallman*. Boston, MA: GNU Press.
Stallman, Richard. 2010. *Free as in Freedom 2.0: Richard Stallman and the Free Software Revolution*. Boston, MA: GNU Press.
Suber, Peter. 2012. *Open Access*. Cambridge: MIT Press.
Taylor & Francis. 2014. "Taylor & Francis Open Access Survey June 2014." Accessed July 18, 2014. http://www.tandfonline.com/page/openaccess/opensurvey/2014.

Vieira, Miguel Said, and Primavera De Filippi. 2014. "Between Copyleft and Copyfarleft: Advanced Reciprocity for the Commons." *Journal of Peer Production* 4. http://peerproduction.net/issues/issue-4-value-and-currency/invited-comments/between-copyleft-and-copyfarleft-advance-reciprocity-for-the-commons/.

Vincent, Nigel, and Chris Wickham. 2013. *Debating Open Access*. London: The British Academy. Accessed July 18, 2014. http://www.britac.ac.uk/openaccess/debatingopenaccess.cfm.

Weber, Steven. 2004. *The Success of Open Source*. Cambridge: Harvard University Press.

Wendling, Amy E. 2011. *Karl Marx on Technology and Alienation*. Basingstoke: Palgrave Macmillan.

Wiley, David. 2006. "Open Source, Openness, and Higher Education." *Innovate Journal of Online Education* 3 (1). http://contentdm.lib.byu.edu/cdm/ref/collection/IR/id/164.

Winn, Joss. 2012. "Open Education: From the Freedom of Things to the Freedom of People." In *Towards Teaching in Public: Reshaping the Modern University*, edited by Michael Neary, Howard Stevenson, and Les Bell, 133–147. London: Continuum.

Winn, Joss. 2013. "Hacking in the University: Contesting the Valorisation of Academic Labour." *tripleC: Communication, Capitalism and Critique* 11 (2): 486–503.

Winn, Joss. 2014. "Writing about Academic Labour." *Workplace: A Journal for Academic Labour* 25: 1–15.

Winn, Joss. Forthcoming. "The Co-operative University: Labour, Property and Pedagogy." *Power and Education* 7 (1).

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The co-operative university: Labour, property and pedagogy

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Abstract

I begin this article by discussing the recent work of academics and activists to identify the advantages and issues relating to co-operative forms of higher education, and then focus on the 'worker co-operative' organisational form and its applicability and suitability to the governance of and practices within higher educational institutions. Finally, I align the values and principles of worker co-ops with the critical pedagogic framework of 'Student as Producer'. Throughout I employ the work of Karl Marx to theorise the role of labour and property in a 'co-operative university', drawing particularly on later Marxist writers who argue that Marx's labour theory of value should be understood as a critique *of* labour under capitalism, rather than one developed from the *standpoint* of labour.

Keywords

Academic labour, co-operatives, higher education, Marx

Introduction

> Co-operation remains the fundamental form of the capitalist mode of production. (Marx, 1976: 454)

> We recommend to the working men to embark in co-operative production rather than in co-operative stores. The latter touch but the surface of the present economical system, the former attacks its groundwork. (Marx, 1866)

Why should we be interested in reconstituting the university as a co-operative? To put this question another way: when confronted by the neoliberalisation of the university (Canaan and Shumar, 2008), its marketisation (Molesworth et al., 2011), its financialisation

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(McGettigan, 2013), the idea of the university being "gambled" and fallen into "ruins" (Readings, 1997), how should we respond? Writing about the use of injunctions to prohibit student protest, Bhandar concludes:

> It is in all our interests to support students, academic and support staff, outsourced cleaners and others in their struggles to reconfigure the ownership of the university, and seize democratic forms of governance the better to create and distribute the social goods that we produce collectively, in spite of current government policies and management strategies. (Bhandar, 2013)

Bhandar recognises that directly confronting the issues of property and worker control of the university is *key* to getting anywhere.

As current as these issues are today in higher education, they have been confronted time and again in other industries. The history of capitalism is also the history of people contesting the organising principle of wage-labour and private property (Wood, 2002). The overriding and overwhelming logic of the capitalist mode of production is to divide and discard labour in the sole pursuit of value; "it promotes over-production, speculation and crises, and leads to the existence of excess capital alongside a surplus-population" (Marx, 1991: 350). Higher education can no longer be understood apart from these outcomes. Today, when the university has assumed the role and form of the factory (Edu-Factory, 2009), its workers are increasingly compelled to seek more radical models upon which to base the idea of the university, the pursuit of knowledge, and determination over their own lives. In a country like the UK where around 50% of young adults are entering higher education (Department for Business, Innovation and Skills, 2013a), this is clearly not just a question for university workers and their students, but for society in general. Here I develop the theoretical justification for co-operative higher education, focusing specifically on the political nature of such a project and the relationship between the pedagogical framework and the institutional form.

The discussion is grounded in Marx's social theory and method: a historical materialist, dialectical and categorical critique of capitalism. Marx's work is useful here because he developed a rigorous critique of political economy that remains relevant today. He identified co-operation as fundamental to the capitalist mode of production, yet regarded worker co-operatives as the most progressive organisational form, attacking the "groundwork" of capital, i.e. labour and private property, through worker autonomy and democracy. I specifically draw from a reading of Marx's work which asserts that an adequate critique of capitalist social relations must be undertaken as a critique *of* labour, rather than from the *standpoint* of labour (Postone, 1993; Winn, 2014). Taking this approach, the form that labour takes under capitalism is to be abolished or overcome (*aufheben*), rather than elevated to the status of the revolutionary subject (Starosta, 2004).

Conversion, dissolution, creation

The idea of a 'co-operative university' is not new, but neither has it gained much traction until recently[1]. A special issue of the *Journal for Co-operative Studies* (44, 3) focused on co-operative education, and a growing number of articles have discussed co-operative education in the UK state school system (Facer et al., 2012; Woodin, 2012). Only a small number of articles and conference items specifically discuss co-operativism and

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higher education, broadly focused on three different routes to co-operative higher education.

1. *Conversion*: Constitute existing universities on co-operative values and principles (e.g. Boden et al., 2011, 2012; Cook, 2013; Dilger, 2007; Juby, 2011; Ridley-Duff, 2011; Wright et al., 2011).
2. *Dissolution*: Constitute co-operatives at the level of the department, research group, and curriculum (e.g. James and Neuberger, 1981; Juby, 2011; Ridley-Duff, 2011).
3. *Creation*: Build new co-operative experiments in higher education (e.g. Haubert, 1986; Social Science Centre, 2013; Somerville and Saunders, 2013; van der Veen, 2010; Woodhouse, 2011).

Since 2011, over 800 state schools have been constituted on co-operative values and principles (Facer et al., 2012; Wilson, 2013; Woodin, 2012); out of that intense activity the Co-operative College sponsored a report, *Realising the Co-operative University* (Cook, 2013). It discusses how and why universities in the UK might become co-operatives, what might appeal about co-operativism to academics and students, and the extent to which co-operative values and principles are already aligned with what we might think of as academic values and principles. Focusing mainly on the *conversion* of existing universities to co-operative universities, it also raises a number of points that apply across all three routes of *conversion*, *dissolution*, and *creation*. These include the legal title of 'university' in the UK; how to define membership; the size and organisational structure of the institution; and the advantages and disadvantages of workplace democracy. In summary, Cook (2013) regards the co-operative university as "an institution *in potentia*" (p.17), and his report suggests a range of practical considerations and further research questions when pursuing the idea of a co-operative university. It builds on work by Juby (2011), Ridley-Duff (2011), and others during and after the UK Co-operative Congress in 2011 and has reinvigorated discussion around the idea of co-operative higher education in a practical way.

However, the emerging literature on co-operative higher education has not adequately discussed the effect that this form of democracy would have on the respective roles and relationships between academics and students; nor has it questioned how the subsequent pedagogical relationship would connect to the meaning and purpose of the university as an institutional form for higher education. Thus the literature does not outline a coherent model of labour, property, and pedagogy as the basis of a co-operative university. In response to this, I focus the rest of this article on the *creation* route to the co-operative university, through discussion of the most radical co-operative model: the worker co-operative. Other types of co-operatives, such as the multi-stakeholder, consumer, and housing co-operative models warrant consideration elsewhere.

The worker co-operative form

The co-operative movement's identity is expressed through a number of values and principles (International Co-operative Alliance, 1995). The values are the basis for the principles; the principles are the basis for action. All formally constituted co-operatives around the world identify with a statement based on the 'Rochdale Principles' of 1844, last revised in 1995 (MacPherson, 2007). The co-operative values are Self-help, Self-responsibility, Democracy, Equality, Equity, and Solidarity. The principles are Voluntary and

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Open Membership; Democratic Member Control; Member Economic Participation; Autonomy and Independence; Education, Training and Information; Co-operation among Co-operatives; and Concern for Community.

The World Declaration on Worker Co-operatives (CICOPA, 2005) states that, ''Worker cooperatives are committed to being governed by the . . . Statement on the Cooperative Identity''. The *Declaration*, approved by the International Co-operative Alliance (ICA) in 2005, defines the ''basic characters'' of worker co-operatives in six statements. These are concerned with the dignity of work and the importance of democratic self-management; the free association of workers; that members of the co-operative collectively employ themselves to undertake the work; the distinction of worker co-operatives from wage-labour and individual self-employment; democratic decision-making; and autonomy from the State and other third-parties with respect to management of the co-operative and control over the means of production.

Worker co-operatives, employee ownership, and worker self-management have a long and important history in the international labour movement and have been the subject of numerous theoretical works, case studies, and critical analyses (e.g. Bayat, 1991; Bernstein, 2012; Coates and Topham, 2005; Crouch and Heller, 1983; Erdal, 2011; Jossa, 2014; Mellor et al., 1988; Ness and Azzellini, 2011; Rothschild and Allen Whitt, 1986; Shukaitis, 2010; Vanek, 1977; Wajcman, 1983). In the 20th century, support for worker co-operatives in the UK gradually developed out of individual philanthropic initiatives such as the Scott-Bader Commonwealth (1951), which became the Society for Democratic Integration into Industry (1958) and in 1971 consolidated several firms into the Industrial Common Ownership Movement (ICOM) (Quarter, 2000). This should be understood within the context of the growing Trade Union movement and the events of 1968 (Bayat, 1991: 20–23), when the socialist Institute for Worker Control (IWC) was formed. The IWC helped establish ICOM and sought to extend the modest achievements of Scott-Bader. The UK at this time saw a growth in worker co-operatives, in particular so-called 'rescue co-operatives' – failing firms that were taken over by their employees, often after periods of occupation (Mellor et al., 1988; Tuckman, 2011; Wajcman, 1983). Out of this activity emerged a need to improve legislation relating to employee ownership and ICOM pressed for a change in legislation. The Industrial Common Ownership Act (1976) reinforced and clarified the provision of the Industrial and Provident Societies Act (1965) (Axworthy and Perry, 1989).

Throughout the 1980s, all three major UK political parties advocated co-operatives. Labour viewed them as ''a true socialist approach to economic planning and development'', the Liberals as contributing to ''a vibrant 'third sector' of employee owned enterprises to enrich our economy and society'', and the Conservatives supported them under their policy of returning state-run industries to the private sector (Mellor et al., 1988: 52–53). Political commitment to the growth of co-operatives was consolidated in the Co-operative Development Agency Act (1978), which led to the creation of a national Agency and local Co-operative Development Agencies across the UK, offering practical assistance to individuals wishing to start a co-operative during that period of rising unemployment. In 2001, ICOM merged with the Co-operative Union to form Co-operatives UK, which is a member of the ICA, the trustee of the Co-operative College, and represented on the National Executive Committee of the Co-operative Party, aligned to the Labour Party.

In 2013, there were 497 worker co-operatives operating in the UK with a 27.5% share of turnover of all co-operatives (Co-operatives UK, 2013). Globally, the International Organisation of Industrial, Artisanal and Service Producers' Cooperatives (CICOPA)

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represents worker co-operatives. It is a sectoral organisation of the ICA with 45 members in 31 countries, including Co-operatives UK. In 2010 there were 111,200 worker, social, artisan, and worker-owned co-operatives worldwide (3725 classified as 'education'), with 83% in Europe and 12% in South America, estimated to employ up to four million people (CICOPA, 2010). Within this global context, there exists a single worker co-operative university, located in the Basque region of Spain.

Mondragon University

Mondragon University is part of the largest federation of worker co-operatives in the world (Erdal, 2011; Kasmir, 1996; Whyte and Whyte, 1988). Established in the 1950s, the Mondragon Corporation is a federated co-operative of 110 co-operatives and 147 subsidiary companies with over 83,000 workers (Mondragon Annual Report, 2012). The university itself is a 'co-op of co-ops', consisting of four autonomous co-operative faculties (Engineering, Business, Humanities and Education, and Gastronomic Sciences) with around 400 staff and 3700 students on six campuses. The Engineering Faculty dates from 1943, Business from 1960, Education from 1976, and in 1997 they were consolidated into a single university, with the Faculty of Gastronomic Sciences added in 2011. A range of degree programmes are offered (12 undergraduate and 10 Masters level), some in collaboration with other universities, and also doctoral research. It recently established Mondragon International Education (MIE), which ''aims to transfer the University's model to higher education institutions in other countries'', with a current focus on South America (Mondragon Annual Report, 2012: 48–49). In addition to the university, there are 15 technology centres and R&D units within the Mondragon Corporation, employing over 2000 researchers. In their field visit report, Wright et al. (2011) describe the university as ''run according to a profit-oriented business logic but always following the premise of being a not-for-profit entity'' (2011: 46).

Although referred to as a 'worker co-operative', there are three types of membership: workers (academics and professional staff), users (other co-operatives, businesses, and the local community) and students; it thus resembles a multi-stakeholder co-operative. Each membership category is a source of finance for the university. Worker members must invest around €15,000 in the university, which can optionally be taken from their social security payments over a 2-year period and ''thus, they materially revoke a social contract with the state, in favour of one with their co-workers'' (Wright et al., 2011: 45). Workers receive a share of the organisation's surplus as salary, which is distributed in anticipation of the year's financial results, and may go up or down. The personal investment each worker has in the university is ''crucial to creating a genuine understanding of what it is to be an owner. Workers become personally but collectively involved in making decisions'' (p.45). The collective drive towards individual gain is ''mitigated'' by constant discussion of the co-operative's values and aims. The university maintains a governing structure similar to that of a conventional university, subject to the oversight of a Faculty General Assembly comprised of one-third each of workers, users, and students; ''this is where the final decisions are taken on the basis of one-member, one-vote'' (p.48).

Student members of Mondragon broadly consist of individuals on conventional degree programmes, and workers being up-skilled for new tasks elsewhere in the corporation. As a private university, it does not receive the substantial state subsidies provided to public institutions, and charges students two-thirds of the full fees of €9000 a year, with the

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remaining third subsidized by consultancy and short courses. The university has established a co-operative to employ students, who earn money to pay for their tuition fees while studying (Wright et al., 2011: 46). Wright and colleagues argue that Mondragon offers a real alternative to the neoliberal university in a number of ways: (1) the employee/employer relationship is replaced by direct worker ownership of the university, arguably overcoming exploitation through the wage relationship, and students are not regarded as mere consumers; (2) the number of administrators, reconceptualised as 'facilitators', is significantly reduced; (3) responsibility for the running of the university, from its pedagogical approaches to its financial strategy, is shared and undertaken collaboratively; (4) the importance of ''structural arrangements and processual rules'' are key to the successful governance of the university; and (5) a ''shared ethos of solidarity and co-operation'' is essential (Wright et al., 2011: 54).

This model raises the important question of 'what is a university for?' At Mondragon, interviewees repeatedly emphasised that ''the purpose of MU is to gear education, research and knowledge exchange to support the future development of companies or local institutions'' (Wright et al., 2011: 53). The institutional form of the university has been consolidated around this business-driven objective, and Wright et al. recognise that this may not be desirable if we regard the role of universities to be the '''critic and conscience' of society'' (Wright et al., 2011: 54). Mondragon University's mission appears largely functional, the training and research arm of the Mondragon Corporation and local businesses; the Vice Chancellor has stated, ''there is no ground for research that has no return'' (Matthews, 2013). Whether Mondragon represents a radical departure from the 'entrepreneurial university' model advocated in recent years is questionable. Further ethnographic study could explore its unique character as the only current worker co-operative university.

In her critical study, prior to the consolidation of the university in its current form, Kasmir (1996) pointed to the ''myth'' of co-operative, worker democracy in the Mondragon Corporation, a myth derived from the views of managerial staff rather than general workers. Her study, from the point of view of the worker rather than the manager, found that the ''worker owners are not shielded from the forces of the world market'' and that ''workplace democracy does not ameliorate [the] daily pressures'' of having to operate in a competitive market-economy that ceaselessly requires improvements in productivity and efficiency (Kasmir, 1996: 194). She notes an emphasis on the co-operative as a business form, rather than a political form, which ''seems to generate commitment and activism among managers'' while ''workers do not make effective use of the democratic and participatory structures available to them'' (p.195).

Surprisingly, Kasmir also found that Mondragon co-operative workers ''do not consider the firms *theirs* in any meaningful way'', concluding that ''property itself does not transform workers, though ideologies of worker ownership and cooperation do remake working classes in other ways'' (Kasmir, 1996: 197). Indeed, a ''central finding'' of her study is that co-operativism ''can divide working classes'' as it transforms the consciousness of a segment of the class in contrast to other workers (p.198). This suggests the need to critique the concept of 'workplace democracy'. She suggests that the practice of democracy is more successful when it is grounded in daily politics and linked to activism; ''If workplace democracy is to be genuine, it seems it must be premised on activism'' (p.199), which recognises that co-operation and co-operatives are ''political and ideological constructs'' that serve a variety of political interests (p.200).

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Theory and method for the co-operative university

Universities in the UK are increasingly discussed in the language of productivism, in terms of economic growth and the reproduction and integration of the labour market (Department for Business, Innovation and Skills, 2013b; Universities UK, 2014). They are regulated by and receive funding from the Department of Business, Innovation and Skills. Within the higher education industry, universities can be conceived as a 'means of production', i.e. as ''the instruments and the object of labour'' which, when combined with purposeful human activity, becomes a ''productive force'' (Marx, 1976: 284–287). In considering the university as a means of production, we refer to the configuration of its ''instruments'' (e.g. technology, buildings, etc.), and the ''object on which that work is performed'' (e.g. prior knowledge). In other words, the 'means of production' refers to the university's structural, technological, and bureaucratic configuration as a form of capital for the production of knowledge. The university incorporates prior knowledge into its production process, and the knowledge it produces is offered as the 'subject of labour' elsewhere, resulting in capital accumulation (i.e. 'growth'). The academic and student are brought together by this configuration in order to produce new knowledge through their labour. Knowledge is commodified in various ways, such as patents, research articles, consultancy, etc., and most importantly in the student's primary commodity of labour-power, which they sell in the labour market (Winn, 2014).

There is a danger that by advocating the worker co-operative form we reinforce and reproduce the university as a means of capitalist production. Although worker co-operatives are often established in opposition to the imperatives of the capitalist mode of production, they cannot simply choose to exist outside its totalising trajectory. Despite the possibility and emancipatory potential of reproducing social life in the interstices or 'cracks' of capitalism (Holloway, 2010), a fundamental premise of a historical materialist understanding of human life is that our collective ability to act in the world is conditioned by the material conditions of production and the way in which labour is actually constituted (Marx and Engels, 1975: 31–32). This does not deny that individuals are able to speculate and imagine circumstances different to what materially exists, but posits that consciousness is an outcome of historical, material conditions and that our ability to actually *act* upon our ideas and *change* the course of history requires a rigorous understanding of the conditions of social life (Marx and Engels, 1975: 37).

Much has been written about the relationship between the co-operative movement and capitalism, including work focused on worker co-operatives as anti-capitalist or post-capitalist social forms (e.g. Egan, 1990; Jossa, 2014; Vieta, 2010). I share the view of Shukaitis that worker co-operatives should be understood as the practice of an ''immanent critique'' (Shukaitis, 2010: 63) of the capitalist mode of production and its configuration of waged labour, agreeing that ''at its best such a project becomes a laboratory for the creation of forms of social cooperation and subjectivities that arguably would form the basis of a post-capitalist world''. With further clarification, I also share Shukaitis' view that worker co-operatives might also be a ''model of prefigurative politics'' (p.62). In the political context, 'prefigurative' and 'immanent' represent two forms of praxis.

On one hand, prefigurative practices are the ''embodiment, within the ongoing political practice of a movement, of those forms of social relations, decision-making, culture, and human experience that are the ultimate goal'' (Boggs, 1977: 100). This is a *positive* standpoint that affirms the possibility of agency while acknowledging its historical and material limits. To the extent that worker co-operatives are prefigurative, this positive approach

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undialectically reifies the standpoint of the worker in the co-operative as embodying its own emancipatory kernel. This affirmation of labour has been the standpoint of almost all worker struggle of the 20th century, and as both a theoretical and strategic position it must urgently be questioned (Kurz, 2014; Postone, 1993).

On the other hand, worker co-operatives can be understood as establishing a *negative* standpoint, as a practised immanent critique. Such a critique is what Postone conceives as a reflexive attempt to critically confront ''both the reality and the ideals of capitalist society, indicating the historically determinate character of both'' (Postone, 1993: 89). Thus, as a negative critique this particular co-operative constitution of labour points to what *is*, and therefore what *is not* (but *could be*). Understood as *both* positively prefigurative and as negative, immanent critical practice, we can argue that the labour of a worker co-operative ''is not undertaken on the basis of what is but of what could be, as a potential immanent to the existent society'' (p.90).

Egan offers a thoughtful discussion of worker co-operatives understood as a dialectical response to capital, and argues that ''the importance of connecting worker management with class struggle lies in providing a measure of safe space in which labor-managed firms can challenge this class imposed limit [on efficiency]'' (Egan, 1990: 81). He makes a compelling argument for the worker co-operative form on its own terms, concluding that the ''potential for degeneration [of worker co-ops into capitalist firms] must be seen to lie not within the co-operative form of organisation itself, but in the contradiction between it and its capitalist environment. Degeneration is not, however, determined by this contradiction'' (p.81). Such a position accords with the dialectical practice of worker co-operatives as being both an immanent critique of the *is*, and prefigurative of the *ought*. In order to develop this dialectical form of critical praxis, grounded as it must be in theoretical categories adequate to capitalist society, we might begin by examining the central category of the commodity form.

Work in the worker co-operative university

The commodity form was a fundamental category in Marx's critique of political economy (Marx, 1976, 1978). A commodity is comprised of 'use-value' and 'exchange-value'; use-value being the utility of something and exchange-value being the expression of the thing's 'value'. Marx discovered that the commodity form is derived from the particular character of labour in capitalism, which takes on a two-fold concrete and abstract social form. 'Concrete labour' refers to the specific effort that produces the thing of utility (i.e. the use-value) and 'abstract labour' refers to the social reduction of labour to an undifferentiated, homogenous form. As such, abstract labour is the qualitative, commensurable 'substance' of a commodity's value, which is quantified retrospectively by the labour time that is socially (i.e. on average) necessary to produce the use-value.

Marx showed that the 'value-form' of a commodity can be analysed on four levels, ranging from the most abstract 'simple form', to the 'expanded' and the 'general', and finally most concentrated, concrete, 'money form'. The simple form expresses ''the secret of the entire value form'' (Marx, 1978: 134) and consists of the 'relative value form' and the 'equivalent form'. When two commodities are brought together for exchange they represent ''two poles of the expression of value'', which are ''inseparable'' (p.135). Marx discussed the simple form in terms of the relationship between commodity A (linen) and commodity B (coats), showing how in the exchange process, x amount of linen takes on the relative value form of y number of coats; therefore the social measure of labour contained in the coats is deemed equivalent to

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a given amount of linen. The relationship can be analysed inversely from the point of view of the coats being relative to the equivalent amount of linen. With dialectical rigour, Marx demonstrates how this *abstract* simple form actually operates in society through the *concrete* use of money, which acts as a universal equivalent for all commodities.

In this way, the commodity is the ''economic cell form'' (Marx, 1976: 90) from which we can dialectically analyse the capitalist mode of production and its apparent determination of social life. The value-form of the commodity is the social form through which we actually relate to one another in society, as consumers, producers, and as legal subjects (Pashukanis, 1989). Marx argued that an individual's primary commodity is his or her own labour-power, or capacity to labour, which is sold for money. Thus we possess commodities that take on the reciprocally relative and equivalent poles of the value form in relation to money and to one another (Marx, 1993: 700–701). This is what Marx meant when he referred to 'indirect labour', which is mediated by the exchange relationship found in the value form. Its emancipatory opposite, 'direct labour', requires exchange value (i.e. value) to be abolished, and with it also the whole system of equivalence instituted by capitalism (Hudis, 2013; Marx and Engels, 1975; Postone, 1993).

What is key here is that in a normal employer–employee relationship the exchange of money for labour-power is actually not equivalent at all. Although the wage relation at first *appears* equivalent because the wage paid is the market value of labour-power (Marx, 1977), labour is unique in that it can be exploited in order to create surplus-value (i.e. profit) for the capitalist; this is achieved by either extending the working day or increasing productivity (Marx, 1976: 427). If labour-power was not exploited in these ways, the capitalist could not create a surplus and the whole mode of production would crumble. This is the fundamental antagonism within the capitalist mode of production, which worker co-operatives attempt to overcome by abolishing the employer–employee relationship and therefore the exploitation of labour-power. By doing so, it is intended that relations between worker-owners of the co-operative are not mediated through value (although their relations with people elsewhere still are), and they are in a stronger position to institute democracy in the workplace and address the division of labour and ownership of property.

In addition to worker democracy in a co-operative university, the exchange relationship between paid teachers (producers) and paying students (consumers) must be overcome so that the value-form of the knowledge commodity ceases to determine the character of the co-operative. In the first instance, the distinction and divide between teachers and students must be addressed through a reconfiguration of the division of labour so as to ensure that individuals in both roles contribute according to their individual capacity and need in the process of knowledge production, rather than a system of equivalence that is resolved in the form of money. Whereas in a conventional, capitalist university, there is a great *diversity of roles* and their respective contractual responsibilities, this division of labour ensures that the *diversity of work* within any given role is constrained. In a worker co-operative university as conceived here, there is a singular role of 'scholar', but a greater diversity of work and significantly less division of labour. According to the individual's capacity, the teacher is also a student, an administrator, a cleaner, etc., and a co-operative university need not do everything that a conventional university aims to do. Labour among members is not divided but is instead *direct*, based on a positive acknowledgement that abilities and needs differ, instead of an *indirect* exchange of teaching and learning labour, compensated and mediated by money so as to achieve a form of equivalent value.

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An academic commons

The division of labour was recognised by Marx and Engels as contributing towards the alienation of labour from its product and reinforcing the institution of private property (Marx and Engels, 1975: 32). Many worker co-operatives aim to overcome the division of labour through the rotation and sharing of roles, and co-operation between co-operatives. As discussed, Marx understood divided labour as 'indirect' labour mediated through the value-form in the exchange process, such that the labour-power of divided individuals, and their product, assume the roles of relative and equivalent commodities. Worker co-operatives can be understood as a form of instituted praxis attempting to replace indirect labour with 'direct', non-mediated, and therefore non-alienated labour. Such a form of labour requires that the property of the co-operative becomes 'social property', an alternative to the paradigms of private and public property. The legal basis for this in the UK is the Industrial Common Ownership Act (1976). Thus, in a co-operative university, where the labour of both students and academics is not divided into contractual roles but according to capacity and need, the property of the co-operative becomes the social property of all member-scholars. This form of property is also known as a 'commons'. Co-operatives UK's model constitution for worker co-operatives (Co-operatives UK, n.d.), includes the option of 'common ownership', which is given legal form in the 1976 Act.

In a university constituted on this basis, its scholars would *collectively* 'own' the means of knowledge production. Implicit in this model of a worker co-operative is that 'common ownership' is not private property shared among a designated group of people, but rather their status is more like 'membership', where workers produce and manage shared assets for individual, collective, and long-term social benefit. Axworthy and Perry (1989) regard this form of property as the antithesis of "the right of free alienability" which distinguishes capitalist private property. They point to the co-operative's defining characteristic of "non-distribution upon dissolution" (Axworthy and Perry, 1989: 660) as ensuring that this form of property is particularly durable. It gives property a peculiar social life of its own, which is not simply a temporary composite owned by a collective of individuals seeking personal gain. The role of the member-worker in such a co-operative amounts to a social role of steward, thus differing from the more conventional roles of Trustee or Share-holder, neither of whom are required to be workers in the enterprise, as well as differing from an individual equity model. Marx recognised that such co-operatives are not *public*, but neither are they *private* in the way a joint-stock company represents "the abolition of capital as private property within the confines of the capitalist mode of production itself" (Marx, 1991: 567). A 'Common Ownership Enterprise' fulfils Marx's expectations regarding the property relations of joint-stock companies being a "necessary point of transition" in the overcoming of capitalism. Common ownership is not simply the property of associated producers but truly a form of "directly social property". It extends beyond "the transformation of all functions formerly bound up with capital ownership in the reproduction process" by decisively breaking that link (p.568). Whereas the joint-stock company is "private production unchecked by private ownership" (p.569), a workers' co-operative is social production governed by a legal form of social or common stewardship. Common ownership of the means of knowledge production among scholar-members of a co-operative university would therefore be a significant step towards an institutional form of academic labour that is not alienated from its product in the way that private property enforces.

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Pedagogy and institutional form

As discussed, her critical study of the Mondragon Corporation led Kasmir to conclude that we must "be sceptical of models that make business forms rather than people the agents of social change" (Kasmir, 1996: 199–200). In contrast to the historical materialist view, she makes an analytical distinction between human social relations and the institutional forms those relations take. This distinction can be resolved if we adopt the dialectical immanent/prefigurative position discussed above, recognising the antinomy inherent in the relation between capital and wage labour, and instead conceiving human agency as dialectically opposed to the agency of "objectified forms that become quasi-independent of, and exert a form of abstract social domination over, the individuals who constitute them" (Postone, 1993: 31). This approach suggests that in working towards an emancipatory form of education, the organisational form is itself an expression of the struggle between individuals and the objective conditions of capital which dominate us. As such, the constitution of a different organisational form (e.g. a co-operative) can be conceived as a political act against the agency of capital's "determinate quasi-objective constraints" (Postone, 1993: 80).

In the context of higher education, the institutional form expresses the relationship between research and teaching (Brew, 2006). Reconstituting this relationship is one of the core activities of a project I have been involved with since 2008 called 'Student as Producer'. In this section, I want to offer a brief survey of recent work on Student as Producer (Neary and Winn, 2009; Neary, 2010; Neary and Hagyard, 2010; Neary, 2012a; Neary, 2012b; Neary and Amsler, 2012; Neary et al., 2014), and propose it as a pedagogical framework for a new form of co-operative higher education; one which attacks the groundwork of the neoliberal university.

Student as Producer is concerned with "re-engineering" the university so as to redress the "dysfunctional" relationship between teacher and student, which reflects the dysfunctional relationship between research and teaching in the modern university (Neary and Winn, 2009). It is both a theoretical and practical political project, a form of praxis being worked on in, against, and beyond the university. Drawing on Walter Benjamin's essay, 'The Author as Producer' (Benjamin, 1934), Student as Producer emphasises not only the qualitative nature of the product (i.e. knowledge), but also on the process and means of knowledge production in the creation of social relations that are antithetical to the organising principles of capitalist social relations (i.e. private property and waged labour).

Neary and Hagyard (2010) argue that a radical pedagogical framework, adequate to the challenges facing humanity, must be grounded in the politics of production rather than distribution and consumption. They argue that higher education must be politicised, or rather, the politics of higher education must be made apparent, and this requires the reorganisation of intellectual and manual labour, rather than its continued division. The authors argue that the purpose of higher education is not the production of students for wage labour, but rather the production of knowledge appropriate to the needs of humanity. Research is demystified as "work anyone can do" and should be informed by its own radical history. This does not simply apply to the Social Sciences, Arts, and Humanities, but also the theoretical and applied sciences which have their own radical history (e.g. Moore, 2013; Wisnioski, 2012). One way to connect, or rather dissolve, traditional disciplines is through their shared radical histories.

As well as Benjamin, Neary (2010) also draws upon the work of Lev Vygotsky (1997), arguing that the basis for transforming institutions of higher education is the transformation of the role of the student. For Vygotsky, the student becomes the student-worker. The role

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of the student is not simply a 'collaborator', or the learner of skills, but an active contributor to the labour process of the university (i.e. the production of knowledge), within which they find their own purpose and meaning. The division of intellectual and manual labour is overcome through the recognition of education as a form of productive labour itself. By revealing the organising principle of knowledge production, the university becomes grounded in the productivity of its students. The student becomes the subject rather than object of history – they make history – and humanity becomes the project rather than the resource. Teaching begins from the student's experience in a particular social context; the students teach themselves and are no longer alienated from the production of knowledge: they ''recognise themselves in a world of their own design'' (Neary and Hagyard, 2010: 8). Therefore, Student as Producer and indeed the *idea* of the university is fundamentally a political project, directly engaged with its existing productivist form. Political subjectivity is ''the essential objective reality out of which practical, critical knowledge is derived'' (Neary, 2012b: 3). The institutional form itself should be partisan, supporting this political project.

Student as Producer exists *for* knowledge and *against* the 'knowledge worker' (Neary, 2012b), using the language and protocols of the university subversively (i.e. as a way to 'interoperate' with the neoliberal university, the State, markets, etc.) without taking on its form. It recognises that ''the production of knowledge is immediately the production of subjectivity and the construction of organisation'' (Roggero, 2011: 138). The institutional form is therefore constructed from the subjectivity of its members, formed through the co-operative production of knowledge, attempting to overcome labour in its capitalist form which is a ''fabrication'' of the social relations of capitalist production. With this pedagogical framework, the issue for the worker co-operative is to discover a way to practice non-alienated, non-abstract, direct labour. This is at the heart of the university's research project: the discovery of a new form of social being. Can the co-operative university be conceived and constituted existentially and ontologically? How can we *become* the university in the form of 'mass intellectuality', rather than 'go to university'? (Neary and Winn, 2009).

Neary and Amsler (2012) conceive the neoliberal university as a peculiar expression of commodified space-time, an ''abstract space'' ruled by the logic of abstract labour, whereby the pedagogical relationship between teacher and student is configured for the production of value. An opposing organisational form would seek to overcome the power of these abstractions by re-configuring the pedagogical relationship so as to abolish knowledge in its commodity form. Education ''cannot be separated from 'life' in institutions'' (Neary and Amsler, 2012: 109) and so all aspects of the institution must be understood to be educational or pedagogical. If we ''have rather lost control over the form, structure and function of academic knowledge'' (p.116), might worker co-operatives be a conscious attempt to *assert* control, *constitute* an organisational form, and *define* a different (e.g. democratic, horizontal, consensus-based) social structure for the production of academic knowledge? If ''the space of the university is mobilised for the purposes of production through its commodification, abstracting, converting into exchange value, fetishizing and modularising'' (Lefebvre, 2008: 338), might the worker co-operative form resist these imperatives? Is it simply a ''diversion'' that will inevitably degenerate, or an appropriation of a different space and time, which through struggle as a form of immanent critique can aid the *transition* to post-capitalism? Must a worker co-operative for higher education *possess* a physical space in time, or can a new space-time be *constituted* through its social form?

Student as Producer is the institutional strategy for teaching and learning at the University of Lincoln (http://studentasproducer.lincoln.ac.uk). Within that context, it

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should be understood as a large-scale project operating *inside* and across the university, grounded in social theory that is *against* what the university has become. It offers a framework to students and academics for the *conversion* of the university into an institution grounded in a theory of co-operative knowledge production, and which recognises that the organising principle of wage work and private property exists at the heart of the modern university. More than this, in its most subversive moments, Student as Producer has been an attempt by some of us to *dissolve* the university into a different institutional form, based on a social, co-operative endeavour between academics and students. We have used the bureaucratic structures of the university to support and safeguard this process. In every programme and module validation, academics and students are asked to consider how their work could incorporate greater co-operation between students and teachers through the principle of *research-engaged teaching and learning* so that students discover for themselves the processes of knowledge production, within which they will find their own place and meaning. In this way, Student as Producer is an intervention into the curriculum design process, aiming ''to promote research-engaged teaching as the organising principle for teaching and learning across all subjects and all levels of taught provision at Lincoln'' (Neary et al., 2014: 5).

The extent to which it is possible to achieve our revolutionary ambitions within the structures of an existing university is of course questionable; although the project's impact, inside and outside the institution, is tangible (Neary et al., 2014). However, over time the subversive, radical language of avant-garde Marxists such as Benjamin is easily subverted and expressed in the more familiar language of consumption. Thus across the sector it is now common to hear of 'Students as Partners' (Higher Education Academy, n.d.) or 'Change Agents' (JISC, 2013). Although informed by Student as Producer, such initiatives are more aligned with the marketing principles of 'Service Dominant Logic', the 'co-creation of value', and 'prosumption' (Naidoo et al., 2011: 1151) rather than, as Benjamin insisted on, a deep reflection on the conditions of present-day production.

Conclusion

In this article, I have discussed how the worker co-operative form might be suitable for a new kind of university, in the light of how the international co-operative movement defines the 'character' of worker co-operatives, and the re-conceptualisation of academic labour that this organisational form would imply. I have asserted that, as it exists today, the university is a means of production employed by capital, with academic labour, to reproduce labour in the form of students, and value in the commodity form of knowledge. A worker-owned and managed co-operative university would therefore control the means of knowledge production and potentially produce a new form of social knowledge. I highlighted the emphasis among worker co-operatives on 'common ownership', a form of property relations that overcomes the distinction between 'public' and 'private' to produce an 'academic commons', such that all members of the university become stewards for the social good. Finally, I suggested that the distinction between teacher and student would necessarily be dissolved through a mutual political project, and with it the division of labour, too. To achieve this, a radically different method of curriculum development and pedagogy would be required. Responding to Kasmir's strictures on the dangers of models that make business forms rather than people the agents of social change, I argued that the organisational form of a 'co-operative university' should itself be derived from the pedagogical relationship between

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teacher-student-scholar-members, i.e. 'scholars', and suggested that the basis of this pedagogical relationship might be Student as Producer. The curricula for a co-operative university remain to be determined by its scholar-members, no doubt informed by its own radical political tradition (Facer et al., 2012: 331; Woodin, 2011).

Against the objective constraints of capital, the institutional form should not determine the design of curricula or the pedagogic relationship between teacher and student, but rather it should be an expression of it, arrived at through a dialectic of political struggle against capital and therefore against the capitalist form of labour. What is required is the emergence of an institutional form which adequately expresses the radical aspirations of academics and students who see themselves as subjects rather than objects of history: the worker co-operative, perhaps? This article has aimed to contribute towards the process of creating pedagogic space to reflect on, discuss, and question the idea of what higher education might be, and could be.

Note

1. Readers may wish to refer to a bibliography that I have compiled, of work specifically discussing co-operative higher education: http://josswinn.org/2013/11/co-operative-universities-a-bibliography/

References

Axworthy CS and Perry D (1989) The law of worker ownership. *Osgoode Hall Law Journal* 27(3): 647–686.

Bayat A (1991) *Work, Politics and Power. An International Perspective on Worker's Control and Self-Management*. London: Zed Books Ltd.

Benjamin W (1934) The Author as Producer. In: Jennings MW, Eiland H and Smith G (eds) (2005) *Walter Benjamin: Selected Writings, Volume 2, 1927-1934*. Cambridge: Harvard University Press, pp.768–782.

Bernstein P (2012) *Workplace Democratization. Its Internal Dynamics*. Boston: Red Sun Press.

Bhandar B (2013) A right to the university, *London Review of Books blog*. Available at: http://www.lrb.co.uk/blog/2013/12/10/brenna-bhandar/a-right-to-the-university/ (accessed 20 October 2014).

Boden R, Ciancanelli P and Wright S (2011) Shopping around for a better way to operate? Try John Lewis, *Times Higher Education*. Available at: http://www.timeshighereducation.co.uk/414835.article (accessed 20 October 2014).

Boden R, Ciancanelli P and Wright S (2012) Trust Universities? Governance for post-capitalist futures. *Journal of Co-operative Studies* 45(2): 16–24.

Boggs C (1977) Marxism, prefigurative communism and the problem of workers control. *Radical America* 11(6): 99–122.

Brew A (2006) *Research and Teaching: Beyond the Divide*. London: Palgrave Macmillan.

Canaan J and Shumar W (2008) *Structure and Agency in the Neoliberal University*. London: Routledge.

CICOPA (2005) World Declaration on Worker Cooperatives. Available at: http://www.cicopa.coop/IMG/pdf/Declaration_approved_by_ICA_EN-2.pdf (accessed 20 October 2014).

CICOPA (2010) Worldwide data. Available at: http://www.cicopa.coop/Worldwide-data.html (accessed 20 October 2014).

Coates K and Topham T (2005) *Workers' Control: A Book of Readings and Witnesses for Workers' Control*. Nottingham: Spokesman Books.

Cook D (2013) *Realising the Co-operative University. A Consultancy Report for The Co-operative College*. Available at: http://dbms.ilrt.bris.ac.uk/media/user/162789/Realising_the_co-operative_university_FOR_DISEMMINATION.pdf (accessed 20 October 2014).

Downloaded from pae.sagepub.com by guest on April 6, 2015

Co-operatives UK (2013) *Homegrown. The UK Co-operative Economy*. Available at: http://www.uk.coop/sites/storage/public/downloads/homegrown_co-op_economy_2013_final_0.pdf (accessed 20 October 2014).

Co-operatives UK (n.d.) Model rules for co-operatives. Available at: http://www.uk.coop/advise/modelrules (accessed 20 October 2014).

Crouch C and Heller FA (1983) *International Yearbook of Organizational Democracy*, Volume 1. Chichester: John Wiley and Sons.

Department for Business, Innovation and Skills (2013a) *Participation Rates in Higher Education: Academic years 2006/7 – 2011/2012 (Provisional)*. Available at: https://www.gov.uk/government/publications/participation-rates-in-higher-education-2006-to-2012 (accessed 20 October 2014).

Department for Business, Innovation and Skills (2013b) *International Education: Global Growth and Prosperity*. Available at: https://www.gov.uk/government/publications/international-education-strategy-global-growth-and-prosperity (accessed 20 October 2014).

Dilger A (2007) German universities as state-sponsored co-operatives. *Management Revue* 18(2): 102–116.

Egan D (1990) Toward a Marxist theory of labor-managed firms: Breaking the degeneration thesis. *Review of Radical Political Economics* 22(4): 67–86.

Edu-Factory (2009) *Toward a Global Autonomous University: Cognitive Labor, the Production of Knowledge, and Exodus from the Education Factory*. New York: Autonomedia.

Erdal D (2011) *Beyond the Corporation: Humanity Working*. London: Bodley Head.

Facer K, Thorpe J and Shaw L (2012) Co-operative education and schools: An old idea for new times? *Power and Education* 4(3): 327–341.

Higher Education Academy (n.d.) *Student as Partners*. Available at: http://www.heacademy.ac.uk/workstreams-research/themes/students-partners (accessed 20 October 2014).

Haubert M (1986) Adult education and grass-roots organisations in Latin America: The contribution of the International Co-operative University. *International Labour Review* 125(2): 177–192.

Holloway J (2010) *Crack Capitalism*. London: Pluto Press.

Hudis P (2013) *Marx's Concept of the Alternative to Capitalism*. Chicago: Haymarket Books.

International Co-operative Alliance (1995) Statement on Co-operative identity, values and principles. Available at: http://ica.coop/en/whats-co-op/co-operative-identity-values-principles (accessed 20 October 2014).

James E and Neuberger E (1981) The university department as a non-profit labor cooperative. *Public Choice* 36: 585–612.

JISC (2013) *Student as Agents of Change*. Available at: http://www.jisc.ac.uk/guides/students-as-agents-of-change (accessed 20 October 2014).

Jossa B (2014) *Producer Cooperatives as a New Mode of Production*. London: Routledge.

Juby P (2011) *A Co-operative University?* Conference presentation at the Society for Co-operative Studies Conference, Cardiff. Available at: http://josswinn.org/wp-content/uploads/2013/11/Juby-2011-A-CO-OPERATIVE-UNIVERSITY2.ppt (accessed 20 October 2014).

Kasmir S (1996) *The Myth of Mondragon: Cooperatives, Politics and Working-Class Life in a Basque Town*. Albany: State University of New York Press.

Kurz R (2014) The crisis of exchange value: Science as productive force, productive labor, and capitalist reproduction. In: Larsen N, Nilges M, Robinson J and Brown N (eds) *Marxism and the Critique of Value*. MCM Publishing, 17-75. Available at: http://www.mcmprime.com/ (accessed 20 October 2014).

Lefebvre H (2008) *The Production of Space*. Oxford: Wiley Blackwell.

MacPherson I (2007) *One Path to Co-operative Studies*. Victoria: British Columbia Institute for Co-operative Studies.

Marx K (1866) *Instructions for the Delegates of the Provisional General Council. The Different Questions, The International Workingmen's Association*. Available at: http://www.marxists.org/archive/marx/works/1866/08/instructions.htm (accessed 20 October 2014).

Downloaded from pae.sagepub.com by guest on April 6, 2015

Marx K (1976) *Capital, Volume 1*. London: Penguin Classics.
Marx K (1977) *Wage Labour and Capital, Marx and Engels Collected Works Volume 9*. London: Lawrence and Wishart Ltd.
Marx K (1978) The Value-Form. In: *Capital and Class*, 4, pp.130–150.
Marx K (1991) *Capital, Volume 3*. London: Penguin Classics.
Marx K (1993) *Grundrisse*. London: Penguin Classics.
Marx K and Engels F (1975) *The German Ideology. Marx and Engels Collected Works Vol. 5*. London: Lawrence and Wishart Ltd.
Matthews D (2013) Inside a co-operative university. *Times Higher Education*. Retrieved 10th June 2014 from http://www.timeshighereducation.co.uk/features/inside-a-cooperative-university/2006776.fullarticle
McGettigan A (2013) *The Great University Gamble: Money, Markets and the Future of Higher Education*. London: Pluto Press.
Mellor M, Hannah J and Stirling J (1988) *Worker Co-operatives in Theory and Practice*. Milton Keynes: Open University Press.
Molesworth M, Scullion R and Nixon E (eds) (2011) *The Marketisation of Higher Education and the Student as Consumer*. London: Routledge.
Mondragon Annual Report (2012) Retrieved on 13th June 2014 from http://www.mondragon-corporation.com/eng/about-us/economic-and-financial-indicators/annual-report/.
Moore K (2013) *Disrupting Science: Social Movements, American Scientists, and the Politics of the Military, 1945-1975*. New Jersey: Princeton University Press.
Naidoo R, et al. (2011) The consumerist turn in higher education: Policy aspirations and outcomes. *Journal of Marketing Management* 27(11–12): 1142–1162.
Neary M (2010) *Student as Producer: A Pedagogy for the Avant-Garde?* Learning Exchange 1(1). Available at: http://eprints.lincoln.ac.uk/4186/ (accessed 20 October 2014).
Neary M (2012a) Teaching politically: Policy, pedagogy and the new European university. *Journal for Critical Education Policy Studies* 10(2): 233–257.
Neary M (2012b) Student as producer: An institution of the common? [or how to recover communist/revolutionary science]. *Enhancing Learning in the Social Sciences* 4(3): 1–16.
Neary M and Amsler S (2012) Occupy: A new pedagogy of space and time? *Journal for Critical Education Policy Studies* 10(2): 106–138.
Neary M and Hagyard A (2010) Pedagogy of excess: An alternative political economy of student life. In: Molesworth M, Scullion R and Nixon E (eds) *The Marketisation of Higher Education and the Student as Consumer*. London: Routledge.
Neary M and Winn J (2009) The student as producer: reinventing the student experience in higher education. In: Bell L, Stevenson H and Neary M (eds) *The Future of Higher Education: Policy, Pedagogy and the Student Experience*. London: Continuum, p. 135.
Neary M, Saunders G, Hagyard A, et al. (2014) *Student as Producer: Research-Engaged Teaching and Learning. An Institutional Strategy*. Available at: http://eprints.lincoln.ac.uk/14789/ (accessed 20 October 2014).
Ness I and Azzellini D (2011) *Ours to Master and to Own. Workers' Control from the Commune to the Present*. Chicago: Haymarket Books.
Pashukanis EB (1989) *Law and Marxism. A General Theory*. London: Pluto Press.
Postone M (1993) *Time, Labour and Social Domination*. Cambridge: Cambridge University Press.
Quarter J (2000) *Beyond the Bottom Line: Socially Innovative Business Owners*. Westport: Quorum Books.
Readings B (1997) *The University in Ruins*. Cambridge: Harvard University Press.
Ridley-Duff R (2011) Co-operative University and Business School: Developing an Institutional and Educational Offer. UK Society for Co-operative Studies. Available at: http://josswinn.org/wp-content/uploads/2013/11/Co-operative-University-Institutional-and-Educational-Offer-Draft-3.pdf (accessed 20 October 2014).

Downloaded from pae.sagepub.com by guest on April 6, 2015

Roggero G (2011) *The Production of Living Knowledge. The Crisis of the University and the Transformation of Labor in Europe and North America*. Philadelphia: Temple University Press.
Rothschild J and Allen Whitt J (1986) *The Cooperative Workplace. Potentials and Dilemmas of Organisational Democracy and Participation*. Cambridge: Cambridge University Press.
Shukaitis S (2010) Sisyphus and the labour of imagination: Autonomy, cultural production, and the antinomies of worker self-management. *Affinities* 4(1): 57–82.
Social Science Centre, Lincoln (2013) An experiment in free, co-operative higher education. *Radical Philosophy* 182: 66–67.
Somerville P and Saunders G (2013) *Beyond Public and Private: the Transformation of Higher Education*. Conference paper. Available at: http://josswinn.org/wp-content/uploads/2013/11/Somerville-and-Saunders-2013-Beyond-public-and-private.pdf (accessed 20 October 2014).
Starosta G (2004) Editorial introduction: Rethinking Marx's mature social theory. *Historical Materialism* 12(3): 43–52.
Tuckman A (2011) Worker's control and the politics of factory occupation. Britain, 1970s. In: Ness I and Azzellini D (eds) *Ours to Master and Ours to Own*. Chicago: Haymarket Books.
Universities UK (2014) *The Impact of Universities on the UK Economy*. Available at: http://www.universitiesuk.ac.uk/highereducation/Pages/ImpactOfUniversities.aspx (accessed 20 October 2014).
van der Veen EW (2010) The new university cooperative: Reclaiming higher education: prioritizing social justice and ecological sustainability. *Affinities* 4(1): 199–204.
Vanek J (1977) *The Labor-Managed Economy*. London: Cornell University Press.
Vieta M (2010) The New Cooperativism. Special issue of *Affinities* 4(1).
Wajcman J (1983) *Women in Control. Dilemmas of a Workers Co-operative*. Milton Keynes: Open University Press.
Vygotsky L (1997) *Educational Psychology*. Boca Raton, Florida: St Lucie Press.
Wilson M (2013) From Co-operative Schools to Co-operative Universities? In: *Co-operative university seminar*, Institute of Education, London, 12 December 2013. Available at: http://josswinn.org/2013/12/co-operative-principles-in-higher-education/ (accessed 20 October 2014).
Winn J (2014) Writing about academic labour. *Workplace: A Journal for Academic Labour* 25: 1–15.
Wisnioski M (2012) *Engineers for Change: Competing Visions of Technology in 1960s America*. Cambridge: MIT Press.
Wood EM (2002) *The Origin of Capitalism. A Longer View*. London: Verso.
Woodhouse H (2011) Learning for life: The People's Free University and the civil commons. *Studies in Social Justice* 5(1): 77–90.
Woodin T (2011) Co-operative education in Britain during the nineteenth and early twentieth centuries: Context, identity and learning. In: Webster A, Shaw S, Walton JK, et al. (eds) *The Hidden Alternative. Co-operative Values, Past, Present and Future*. Manchester: Manchester University Press.
Woodin T (2012) Co-operative schools: Building communities in the 21st century. *FORUM* 54(2): 327–340.
Wright S, Greenwood D and Boden R (2011) Report on a field visit to Mondragón University: A cooperative experience/experiment. *Learning and Teaching* 4(3): 38–56.
Whyte WF and Whyte KK (1988) *Making Mondragon. The Growth and Dynamics of The Worker Cooperative Complex*. Ithaca: Cornell University Press.

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